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PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION—1858.

The American Pharmaceutical Association commenced its Seventh Annual Meeting at the Hall of the Smithsonian Institution, City of Washington, on Tuesday, the 14th of September, 1858, at three o'clock.

The meeting was called to order by the President, Charles Ellis, of Philadelphia; W. J. M. Gordon, of Cincinnati, Secretary.

A Committee on Credentials, consisting of John Meakim, of New York, Richard H. Stabler, of Alexandria, and Alfred B. Taylor, of Philadelphia, was appointed by the Chair, who, after a short recess, reported the following Delegates:

From the *Massachusetts College of Pharmacy*—Anthony S. Jones, (of Newburyport,) Thomas Hollis, S. M. Colcord, A. P. Melzar, and H. W. Lincoln.

New York College of Pharmacy—Eugene Dupuy, Henry T. Kiersted, John Meakim, Alexander Cushman, and John Faber.

Philadelphia College of Pharmacy—Ambrose Smith, Charles Ellis, Samuel S. Garrigues, William Procter, Jr., and Alfred B. Taylor.

Maryland College of Pharmacy—J. Brown Baxley, Israel J. Grahame, Alphæus P. Sharp, Charles Caspari, and William S. Thompson.

Cincinnati College of Pharmacy—W. B. Chapman, W. J. M. Gordon, John W. Hannaford, John C. Parr, and W. S. Merrill.

Washington Pharmaceutical Association—V. Harbaugh, F. S. Walsh, J. L. Kidwell, Jos. W. Nairn, and Jos. Walsh.

St. Louis Pharmaceutical Association—James O'Gallagher.

The Secretary then called the roll, to ascertain what members had arrived, when the following answered to their names:

Anthony S. Jones,
John Meakim,
Eugene Dupuy,
John Canavan,
Frederick Hale,
Henry T. Kiersted,
John Faber,
J. B. Baxley,
Samuel E. Tyson,
Daniel B. Clarke,
W. J. M. Gordon,
John L. Kidwell,
Frederick Stearns,
James O'Gallagher,
Charles Ellis,
William Procter, Jr.,
Alfred B. Taylor,
Samuel S. Garrigues,
Ambrose Smith,
Alphæus P. Sharp,
Israel J. Grahame,
H. H. M'Pherson,
F. S. Walsh,
R. H. Stabler,
George W. Wyman.

The Executive Committee reported the following list of members made during the interim, viz:

William M. Selfridge,	of Bethlehem, Penna.
George W. Weyman,	Pittsburgh, "
O. Gilman Dart,	Keene, N. Hampshire.
Charles A. Younghaus,	Cincinnati, Ohio.
J. Chadwick Moody,	St. Louis, Missouri.
James O'Gallagher,	" "
Alexander Leitch,	" "
Samuel W. Osgood,	Davenport, Iowa.
William Longshaw, Jr.,	Bayou Sara, Louisiana.

The following gentlemen were proposed by the Executive Committee for membership, and were duly elected, viz:

Lewis E. Higby,	Detroit, Mich.	Edward L. Milhau,	New York.
William J. Jenks,	Philada, Pa.	George O. Bridges,	"
Joseph L. Lemberger,	Lebanon, "	Lewis T. Lazell,	"
Charles H. Suter,	Pittsburgh, "	Edward H. Marsh	"
A. H. Grimshaw,	Wilmington, Del.	John H. Currie,	"
John Bagnon,	Shreevesport, La.	Andrew J. Barker,	"
George F. Ayling,	Brooklyn, N. Y.	Samuel M. Stebbins,	"
J. H. Larwell,	Wooster, Ohio.	Henry R. Haydock,	"
George A. Shuesler,	Cinn., Ohio.	Lucian F. Wheeler,	"
Robert J. Davies,	Brooklyn, N. Y.	John C. Hart,	"
William J. Oliffe,	New York, N. Y.	Robert A. Sands,	"

Thomas T. Green,	New York,	Hervey Herman,	Washington, D.C.
Ray B. Easterbrook,	"	Edward Shoemaker,	" "
Henry King,	"	Joseph W. Mariew,	" "
William Edgerton,	"	T. C. M'Intyre,	" "
Wm. M. Somerville,	"	R. A. Payne,	" "
Henry A. Cassebeer,	"	S. R. Sylvester,	" "
William Hegeman,	"	John L. Love,	" "
Frederick V. Rushton,	"	Joseph B. Moore,	" "
John D. Dix,	"	Henry Thayer,	Cambridgeport,
William A. Gillatty,	"	Mass.	
J. H. Westerfield,	"	John A. Milburn,	Alexandria, Va.
Walter S. Coon,	"	Edward R. Squibb, M. D.,	N. Y.
Augustus C. Evans,	"	Edward Kloman,	Baltimore, Md.
Henry Kiersted,	"	Geo. C. Clare,	Brooklyn, N. York.
E. Raphael Perrot,	Philadelphia,	Charles A. Nolcini,	Newburyport,
William B. Thompson,	"	Mass.	

The following Committee was appointed to nominate officers for the ensuing year:

By the Delegations:—Henry T. Kiersted, N. Y.; Anthony S. Jones, Mass.; W. J. M. Gordon, Cincinnati; J. O'Gallagher, St. Louis; Israel J. Grahame, Baltimore; John L. Kidwell, Washington.

By the Chair, from the Meeting at large:—Frederick Stearns, Detroit; Geo. W. Weyman, Pittsburg; A. P. Sharp, Baltimore.

The report of the Executive Committee was then read in full, by the Chairman, S. S. Garrigues, and accepted.

The following is an abridgement of this report, viz:

[The Committee, after the adjournment in 1857, occupied themselves with the mass of MS. resulting from its proceedings, and after considerable labor succeeded in getting them arranged to satisfaction. Twelve hundred copies of the volume of 180 pages each were printed; two hundred of these were bound in cloth, and the balance in pamphlet form. Single copies were distributed to each member free of charge, leaving the remaining two copies to be obtained by them at their own expense, as they might direct. The Chairman acknowledges the assistance of S. M. Colcord, of Boston, John Meakim, and Henry Bridgeman, of New York, Joseph Roberts, of Baltimore, W. J. M. Gordon, of Cincinnati, F. Stearns, of Detroit, and E. L. Massot, of St. Louis.

Copies of the Proceedings were sent to most of the Scientific and Medical Journals, to libraries, and other public institutions of the country, and to some of the English and Continental Pharmaceutical Journals. Quite a number were bought by parties not members, who thus manifested their interest. The Committee recommend that members avail them

selves of the low price put upon the work, to place it in the hands of such persons as it is desirable to enlist in the cause we advocate. The committee next allude to the stock of Proceedings for past years, and have but a few copies of most of them left; of the volume of 1857, about 400 copies. Those who may have duplicate copies of the early numbers are advised to forward them to the Chairman of this Committee, to aid him in making complete sets.

The blank certificates of membership being exhausted, a new edition of 200 was obtained.

This Committee reports that nine members were made during the interim, and several others ready to be brought forward.

The Committee had not succeeded in obtaining an act of incorporation from Congress, owing to the absence of the Washington member of the Committee during the Session of Congress.]

The following Documents were then read by their titles, and laid on the table, viz:

Report of the Committee on the Progress of Pharmacy.

Report of the Committee on Syllabus of a Course of Study appropriate for the Student of Pharmacy.

Report of the Committee on the preliminary Revision of the Pharmacopœia.

Report of the Commmittee on Local Unofficinal Formulæ.

An invitation from the Washington Pharmaceutical Association, to the visiting delegates and members of the American Pharmaceutical Association, to visit Mount Vernon, and the tomb of Washington, on Thursday, the 16th inst., at 10 o'clock A. M., was read and accepted.

On a motion of Mr. Stearns it was carried that when we adjourn, we shall adjourn to meet to-morrow morning at nine o'clock.

On motion of John L. Kidwell, the following was unanimously carried:

Resolved, That D. J. Browne, Esq. of the Patent Office, Prof. Henry, Prof. Baird and Prof. Craig of the Smithsonian Institution, Professors Curly, Clarke and Riley of Georgetown, and Commander M. F. Maury of the National Observatory, be invited to attend the meetings of this Association, and present to the Association any remarks they may be disposed to offer.

The President now read the Annual Address, of which the following is an abstract:

"FELLOW ASSOCIATES,—The Seventh Anniversary of the American Pharmaceutical Association has arrived; and among the peculiar duties which belong to the occasion, is that which requires of its retiring President a general view of the affairs of the Association during the period which has elapsed since our last meeting, together with any information as to its prospects, and suggestions as to its future government, which may occur to him.

It is cause for gratitude to an overruling Providence that so many of us have been permitted to assemble under its auspices in the metropolis of the Union, and I may venture to express the hope that on the present occasion we shall have a rich harvest in the interesting and valuable reports and papers from committees and individuals to whom labors of investigation have been entrusted.

Among the duties assigned to Committees, the preparation of a Syllabus of a course of studies appropriate to the student of Pharmacy is equally important with any other. The Chairman of that Committee will submit a report asking for its further reference. From the Committee on weights and measures, a report may be looked for. It is understood that the important Committee on the revision of the United States Pharmacopœia, have not been unmindful of their duties. How far the several sub-committees may have progressed with their labors, I am not advised. The unwieldy nature of the undertaking, embracing as it does, members so widely separated, will sufficiently account for any difficulties that may have beset the Committee. It is greatly to be hoped that they have been successful in getting a general response from those concerned, medical and pharmaceutical, who are entitled to a judgment of the character of our next National Codex.

The Committee on the adulterations in drugs has been at work, and we may anticipate a lucid and valuable report from its indefatigable Chairman.

The other special Committees on local unofficinal formula, and on the amendment of the law regulating the importation of drugs and medicines. will no doubt have some results to lay before us..

The Chairman of the Executive Committee has furnished in his report the transactions appertaining to his official position, especially in regard to membership. As our Association increases in age and numbers, we may look for difficulties to occur in regard to membership, both in reference to the annual contributions and ethical relations. Hence the duty of the Executive Committee in keeping a corrected roll list of members, and reporting the names of delinquents who voluntarily separate themselves from us by refusing the small annual fee during more than three successive years, is one of decided importance to the welfare of the Association. * *

To no one of the permanent features of the New Constitution do we look with greater interest than to the Report on the Progress of Pharmacy. From the able Chairman of this Committee, whose industry is only

equalled by his pharmaceutical ability, we may anticipate an exposé of nearly all that has transpired, that is novel and interesting in the Pharmaceutical world since our last meeting.

The advantages which have heretofore attended the plan of referring subjects to individual members for investigation, indicate the propriety of appointing a committee at an early day, of two members qualified for the task, to prepare and submit a list of subjects for reference at this meeting; and although the Constitution does not provide for any distribution of prizes, it will undoubtedly be found a great incentive to action if it is understood that the ablest essay or investigation submitted to the Association upon any subject connected with our profession, shall receive a reward to be determined by a special committee."

[The remainder of the address was mainly of a historical character, referring to the past annals of the Association, and renewing many pleasant reminiscences of the former meetings. Those who desire to see it, will find the paper in full in the volume of Proceedings about to be issued by the Executive Committee.—Ed. Am. Journ. Pharm.]

When on a motion of J. O'Gallagher, the Association expressed its satisfaction with the Address, and then adjourned.

Second Day—Morning Session—Sept. 15th, 1858.

The meeting was organized at nine o'clock, and the previous minutes read and approved.

On motion, the call of the roll was dispensed with, and the members present, not at the meeting yesterday, requested to report themselves to the Secretary, when the following names were presented:

C. B. Guthrie,	Samuel M. Colcord,
E. Donnelly,	Augustus P. Melzar,
W. S. Merrill,	Henry W. Lincoln,
Alfred S. Lane,	T. C. McIntyre,
Charles A. Heinitsh,	James Cooke, M. D.,
William S. Thompson,	Henry Haviland,

Charles Caspari.

The following list of gentlemen was brought forward by the Executive Committee as suitable for membership, most of them being vouched for by the Massachusetts Delegation. On motion, the rule for election by ballot was suspended, and the election was carried unanimously, *viva voce*.

David Roberts,	Boston,	Mass.	William Gay, Cambridgeport, Mass.
William Brown,	"	"	George S. Kendrick, Lebanon, N. H.
Oliver H. Webber,	"	"	B. W. Conant, Woburn, Mass.
Geo. D. Towne,	"	"	R. B. Saunders, Chapel Hill, N. C.
D. B. Kidder,	"	"	Harmer D. Sculler, Pittsburg, Pa.
Andrew R, Fox,	"	"	B. F. Scribner, New Albany, Ind.
Granville M. Clark,	"	"	H. A. Tilden, New Lebanon, N. Y.
Geo. D. Ricker,	"	"	A. A. Solomons, Savannah, Geo.
C. H. Lyon, Jr.	"	"	W. W. Solomons, " "
Charles A. Merrill,	Exeter, N. H.		D. Boyle, Washington, D. C.
			Fayette W. Johnston, Fredericksburg, Va.

The Committee appointed to nominate officers for the ensuing year, reported the following names:

For President—JOHN L. KIDWELL, of Georgetown, D. C.
1st *Vice President*—Edward R. Squibb, of New York.
2d " " James O'Gallagher, of St. Louis.
3d " " Robert Battey, of Rome, Georgia.
Recording Secretary—W. J. M. Gordon, of Cincinnati.
Corresponding Secretary—Ambrose Smith, of Philadelphia,
Treasurer—Samuel L. Colcord, of Boston.
Executive Committee—Samuel S. Garrigues, of Philadelphia; Henry W. Lincoln, of Boston; Eugene L. Massot, of St. Louis, F. S. Walsh, of Washington, and W. J. M. Gordon, *Rec. Sec.*, ex-officio.
Committee on the Progress of Pharmacy—Edward Parrish, of Philada.; Wm. S. Thompson, of Baltimore; John Jackson, of Knoxville, Tenn.; Wm. A. Brewer, of Boston; Ambrose Smith, *Cor. Sec.*

The Association then proceeded to the election of officers by ballot. The names reported by the Committee for President, Vice Presidents, Secretaries and Treasurer, were duly elected. On motion of Dr. Guthrie, the election for the two Standing Committees was deferred until the morning, and that portion of the report was returned to the Committee.

The President elect was now conducted to the chair by the retiring President, and made a pertinent speech, returning his thanks for the honor conferred, and promising his best exertions for the benefit of the Association.

The following Special Committees made their reports by title and were laid on the table, viz.

Committee on Weights and Measures,
" on Adulteration of Drugs.
" on the Amendment of the U. S. Law regulating the Importation of Drugs and Medicines.

The report on "Syllabus of Studies," &c., was now called up. Prof. Procter, Chairman of the Committee, moved that the report be referred to a Committee of two competent members, who should examine it, and report to a future sitting whether they deem it proper for publication, which was carried, and the examination committed to Israel J. Grahame and Frederick Stearns.

The Report on Weights and Measures being called up, was read by the Chairman, Dr. Gurthrie, and on motion was accepted and laid on the table.

The Report on the Preliminary Revision of the Pharmacopœia was read, including several sub-reports, accepted and laid on the table.

The Report on the Adulteration of Drugs, &c., was next called up and read by Dr. Guthrie, who made some verbal remarks, stating that the Report was entirely his own, and wishing to be considered as alone responsible for its contents. The Report was accepted and laid on the table for future action.

The Report on Local Unofficinal Formulæ was called up and read by the Chairman, John Meakim, was accepted and laid on the table.

The Report on Amendments to the Drug Law was read by the Chairman, Dr. Guthrie, and accepted.

The Treasurer made a report which was read and referred to Messrs. Guthrie and Stabler to be audited.

On motion, it was resolved that a committee of two be appointed to prepare, and report at a future sitting, a list of subjects for investigation, to be referred to members. The chair appointed William Procter, Jr., and Frederick Stearns.

Then adjourned until 3 o'clock, P. M.

Afternoon Session—Three o'clock, P. M.

The meeting having been called to order by the President, the following persons were proposed for membership, and duly elected:

S. B. Waite, Washington, A. Vogeler, Baltimore,
Lewis M. Smith, " Leander Neal, Lancaster.

The Report of the Committee on the Progress of Pharmacy was called up; it being very lengthy, the chairman, Frederick

Stearns, read such parts as he thought interesting. It was, on motion, accepted.

D. J. Browne, Esq., of the Agricultural Department of the Patent Office, was present by invitation, and being introduced to the Association, made some interesting statements relative to the introduction of some medicinal plants into this country, naming olives, which are now growing well in the Southern States; figs, prunes, and acorns of cork trees. The cork tree has been growing well from the vicinity of Cincinnati, west and south-west, and the success has been so great that the department is importing 10,000 tin cans of the acorns done up carefully in earth. The verbena, fœnugrec seed and chufa, or earth almond, are also among the number. The latter is a small farinaceous tuber attached to the root of a grass-like plant (Cyperus esculentus.) The following are its constituents, viz:

Water	15·50
Fibrous matter . . .	21·45
Starch	27·00
Gum and albumen . . .	6·65
Peculiar sugar, like mannite .	12·25
Wax	0·50
Fat oil	16·65
	100·00

They are also attempting to introduce Pyrethrum caucassicum, used for the destruction of insects and other vermin. Attempts have been made to introduce the opium poppy, but hitherto without success. Liquorice has been introduced to a small extent, and succeeds well. The department have also turned their attention to the Ptelia trifoliata, an indigenous shrubby tree, which is said to be a substitute for the hop, and is alleged to produce three times as much *lupulin* [?] as the humulus.

Mr. Browne, in concluding his remarks, suggested that the Association might aid the Department by collecting information, and by introducing medicinal plants and substances, and, on motion, a committee was appointed to take the subject into consideration, and report in what manner the Association can aid in the work.

The chair appointed Prof. W. Procter, Dr. C. B. Guthrie and Frederick Stearns.

Scientific papers being now in order, were called up regularly from the minutes of last year; those that were ready, but not present at the meeting, being postponed to a future sitting.

1. Liebig (Agricultural Chemistry, Amer. edit. p. 184) says that the nicotina of commercial tobacco does not pre-exist in the growing plant, but is the result of the fermentation set up during the curing process. *Question.* If this be true, what is the active principle of green tobacco; and what relation does it bear to nicotina?

Wm. Procter, Jr., to whom this question was referred, read a paper in answer, in which he arrives at the conclusion that nicotina does exist in the growing plant, but does not determine satisfactorily whether that alkaloid is increased or diminished by the curing process. The paper was referred to the Executive Committee for publication.

Then, on motion, adjourned to 7½ o'clock, P. M.

Evening Session.

The meeting was called to order by the President.

The next subject was the following:

2. Wine of Ipecacuanha. What is the cause of its tendency to deposit a sediment, etc.?

Joseph Roberts, of Baltimore, to whom this question was referred, had not prepared a report, for a sufficient reason; the subject was referred to the committee on subjects for investigation next year.

3. Blue pill mass is coming into use in the form of powder. *Question.* —Does the condition of the mercury undergo any change by the ordinary exposure in the shop as regards oxidation? Does this powder, after being prepared for a year, contain any red oxide of mercury; and what is the best process for its preparation?

Prof. Procter read an elaborate report from Charles Bullock, of Philadelphia, to whom this subject was referred, which developed some interesting facts in relation to the oxidation and solubility of mercury and its oxides, which was referred for publication.

4. The medicinal plants of Michigan.

Frederick Stearns read extracts from a long and interesting report on this subject, which exhibits that Michigan is abundantly supplied with valuable medicinal plants. The paper was referred for publication.

Prof. Joseph Henry, of the Smithsonian Institute, being present, was introduced by the President, and made some highly interesting remarks, showing the manner in which the intentions of Mr. Smithson were being carried out by the present officers, and intimated that this Association, being in harmony with those objects, might co-operate usefully in reference to the extending of our knowledge of medicinal plants and substances.

A vote of thanks was tendered to Prof. Henry for his communication, and for the polite manner in which he had facilitated the meeting of the Association in the Institute building.

5. Mustard. What is the best formula for a permanent liquid preparation of white or black mustard seeds that may be used as a substitute for mustard plasters.

Edward Parrish, to whom this question was referred, was prevented from answering it by his unexpected absence in Europe, and the subject was continued to him another year.

6. The subject of coating pills with sugar, mucilage, etc.

referred to John Canavan, not having been responded to, Mr. Canavan requested that the subject be continued to him another year, which was agreed to.

7. Podophyllin is alleged to be analogous to Jalapin in its medicinal and some of its chemical relations. *Question.*—What is the correct chemical history of Podophyllin, as regards its solubility in menstrua, its relation to the alkalies and other agents, &c., and why may it not be advantageously substituted for extract of jalap in compound cathartic pill, and for scammony in the compound extract of colocynth?

Dr. Stabler, of Alexandria, to whom this subject was referred, read a report, which was accepted and ordered to be published.

8. The question in relation to the origin of Southern Prickly Ash Bark, and the relation of its pungent principle to that of Xanthoxylum piperitum, &c., being called up, Mr. Gordon informed the meeting that Mr. Wayne had not been able to devote himself to the labor allotted to him, and, on motion, he was excused from further attention to the subject.

9. The question proposed in relation to the influence which

admixture has on the Pharmaceutical menstrua as regards solvent power, referred to W. H. Pile, M. D., of Philadelphia, not being understood, owing to an accidental misprint, no report was made.

10. A monograph on the Cerasus serotina, or wild cherry bark tree, and its products useful in medicine, being called up, Prof. Procter read his report, which was accepted and referred for publication.

13. The Brazil nut of South America yields a fixed oil in abundance. *Question.* How and to what extent is it manufactured in Brazil, to what uses put, and whether is it applicable or not to the uses of olive oil in Pharmacy?

Dr. Edward Donnelly, of Philadelphia, to whom this paper was referred, read an interesting report, historical and experimental, and illustrated it with an oil painting of the tree producing this nut, several specimens of the nuts, their oil and its products. The paper was referred for publication.

The meeting then adjourned to meet 8½ o'clock on Thursday morning.

Third day—Morning Session, Sept. 16th, 1858.

The meeting was called to order by the President, near the time adjourned to, and the roll was called, amended and adopted.

The report of the Committee appointed to audit the Treasurer's account, reported it correct, and was accepted.

Motions were made to fix upon a place for the next annual meeting, by delegates from Boston and St. Louis, which were laid on the table for the present.

The Committee on nominations now reported the following named members for the Standing Committees, who were duly elected:

For Executive Committee.

S. S. Garrigues, of Philadelphia, Chairman.
H. W. Lincoln, Boston.
F. S. Walsh, Washington.
Edward Parrish, Philadelphia.
W. J. M. Gordon, Cincinnati.

For Committee on Progress of Pharmacy.

William Procter, Jr., of Philadelphia, Chairman.
William S. Thompson, Baltimore.

John Jackson, Knoxville, Tennessee.
William A. Brown, Boston.
Ambrose Smith, Philadelphia.

Dr. Guthrie gave notice that he would offer an amendment to the Constitution at a future sitting.

The time having arrived for proceeding on the excursion to Mount Vernon, the meeting adjourned to meet on their return.

Mansion House, Mount Vernon, Va., Sept. 16th, 12½ o'clock, P. M.

The President having called the Association to order, the thanks of the Association were, on motion, tendered to Mr. John A. Washington for his kindness in permitting the members to examine the mansion and grounds of Mount Vernon, and for giving them access to a portion of the building containing many interesting articles that had belonged to the illustrious Washington, not usually shown to visitors.

The thanks of the Association were also tendered to Captain Baker, of the steamer Thomas Colyer, for his kindness and courtesy during the day.

On motion, the minutes of the proceedings of the meeting at Mount Vernon were ordered to be entered on the minutes of the Association.

Evening Session—Seven o'clock.

The meeting was called to order by the President.

Dr. Jos. Walsh, Chairman of the Committee of Arrangements of the Washington Pharmaceutical Association, in a few appropriate remarks, presented to the Association an ambrotype group of the members, taken as they stood at the Tomb of Washington. Prof. Guthrie, on behalf of the Association, accepted the picture, and responded to Mr. Walsh in an appropriate speech.

The reading of scientific reports was resumed.

14. The process of displacement or percolation; what are the conditions and precautions which give it the greatest simplicity and efficiency as a means of extraction in practical pharmacy?

This report, by Prof. Grahame, of Baltimore, was read and illustrated by numerous experiments. The paper was accepted and referred for publication.

15. The questions relating to Cornus florida, referred to John M. Maisch,

of Philadelphia, not being reported on, were, on motion, continued to him for another year.

On motion, Dr. Antisell, of Georgetown College, was invited to a seat in the Convention.

15. What are the present sources of senega, spigelia, and other prominent American roots, etc., as supplied by commerce?

Prof. Guthrie, to whom this question was continued last year, stated that he had not prepared the report, and asked permission to read a paper on another subject in lieu thereof, which was granted; and it was referred to the Executive Committee to publish at their discretion.

As several of the members had volunteer papers which they were anxious to read, so as to be able to leave the city before the close of the meeting, precedence was granted to them before the remaining regular papers.

Two communications from Henry A. Tilden, of New Lebanon, New York, were presented and read by Dr. Guthrie. They were referred to the Executive Committee to publish at their discretion.

Dr. Henry Thayer, of Cambridgeport, Mass., was then invited to read his papers; the first on concentrated medicines, and the second on the comparative value of sugar and alcohol as preservative agents in fluid extracts; both of which were accepted and referred for publication.

Dr. Edward R. Squibb having prepared a volunteer paper entitled "Suggestions in regard to the revision of the United States Pharmacopœia," he was invited to read it, which he continued to do until near the time for adjournment arrived, when the remainder was left till the morning sitting.

Dr. Guthrie offered the following preamble and resolution, which was carried, viz:—

Inasmuch as this Association has heretofore recognised the law of Congress, commonly known as the drug law, as beneficial in its results, and, when fully carried out, a protection to the community against adulteration and sophistications, and believing that law to be imperfect and requiring amendment, therefore,

"Resolved, That the memorial prepared by a committee of this Association for presentation to Congress, be also placed in

the hands of the Hon. Secretary of the Treasury with an appeal to him for his recommendation."

Dr. Guthrie, according to previous notice, moved to strike out the fifth section of article 2d, of the Constitution, and insert

"Section V.—The nomination of officers for the ensuing year shall be in open convention, and shall be made immediately after the delivery of the President's address; such nominations being sent to, and announced by the Chair; and the election shall be by ballot, at the opening of the succeeding meeting."

On motion, this resolution was laid on the table.

On motion of Frederick Stearns, a committee of two was appointed to examine and report on the specimens on exhibition, whereupon the Chair appointed John Meakim and Edward Donnelly.

Then adjourned to 8½ o'clock to-morrow morning.

Fourth Day—Morning Session—Sept. 17th, 1858.

The meeting was called to order by the President, and the proceedings of yesterday read and adopted.

Dr. Squibb resumed the reading of his paper, and illustrated it with many valuable specimens, and several test experiments. The paper was accepted and referred to the Executive Committee for publication.

On motion of Prof. Procter, the thanks of the Association were tendered to Dr. Squibb, for the very valuable information contained in the paper just read, the result of his practical experience.

The following Report, in reference to the subject introduced by D. J. Browne, Esq., of the Patent Office, was read, and was adopted.

"The Committee to whom was referred the subject of an application to the Agricultural Bureau of the Patent Office, as brought to the notice of the Association by D. J. Browne, Esq., report, that they have considered the subject, and recommend that an application be filed in the Patent Office, requesting, that on the reception, by the Department, of any medicinal roots, plants, or seed capable of yielding plants, that they forward to the Secretaries of the Colleges of Pharmacy, at Boston, New York, Philadelphia, Baltimore and Cincinnati; the Pharmaceutical Associations of Washington, Richmond, St. Louis, and San Francisco, and to parties in Detroit, New Orleans, Charleston and Nashville, to be designated by the Committee, such

parcels of them as they deem sufficient for experimental purposes. Your Committee recommend that the practical carrying out of this business be referred to a committee of four members, who shall be instructed to draw up an application to the Agricultural Bureau and file it as above directed, and who shall address, on behalf of the Association, communications to each of the recipients indicated, enlarging on the importance of giving any specimens sent to them by the Department, the most careful attention as regards culture and analysis, as the case may require, and that they communicate the result to the Agricultural Bureau as early as possible thereafter.

Your Committee recommend that this subject be referred to the four following gentlemen, viz: John L. Kidwell and F. S. Walsh of Washington, T. P. James, of Phila., and William A. Brewer, of Boston.

Respectfully submitted,

WILLIAM PROCTER, JR.,
C. B. GUTHRIE,
FREDERICK STEARNS."

The Committee appointed to examine the Report on Syllabus of Pharmacy, offered the following as their report, which was adopted:

"Your Committee, to whom was referred the Report of Prof. Procter, upon a Syllabus of a Course of Study appropriate to the Student of Pharmacy, beg leave to report, that upon an examination of said paper, they are of opinion that it should be published in the Proceedings of the present meeting, *in extenso*. It will be understood by the Association that the author of the paper in question hesitated to have it published in the Proceedings on account of its not treating the subject at such length as he deems necessary to render it a complete Syllabus. Your Committee, while they admit the idea that such a subject, carried to completeness, would necessarily occupy a large volume, yet they deem the paper now presented contains so much valuable information as to render it worthy of a permament place in the proceedings of this body. All of which is respectfully submitted.

I. J. GRAHAME,
FREDERICK STEARNS.

The consideration of scientific papers was now resumed.

The question, what is the best powder or compound of powders uniformly to be used in rolling pills, not required to be masked or coated with sugar, gelatine or other substance? accepted by Wm. A. Brewer, of Boston, not having been reported on, was dropped from the list.

18. The question relative to the refractive power of oil of bitter almonds, as a test for its purity, referred to J. T. Fuller, of Detroit, were not reported on, and was referred to the new list.

19. The questions relative to hemlock pitch, balsam of fir, and oil of

hemlock, referred to S. P. Peck, of Bennington, Vermont, was, at his request, continued another year.

20. John Buck, of Chelsea, Mass., to whom was referred the questions relative to the culture of the Elaterium plant, etc., informed the Association that, contrary to what had been told him at the time of his accepting the subject, he was unable to find the growing plant in any of the gardens, or elsewhere, around Boston. The subject was therefore dropped from the list.

21. To what extent is the fecula of Maranta arundinacea produced in Georgia and other Southern States, and what impediments prevent its being made to rival that of Bermuda in excellence and beauty?

Dr. Robert Battey, of Rome, Georgia, to whom these questions were referred, submitted an interesting report, (accompanied by numerous specimens of arrow root prepared in Georgia and Florida,) which was read by Prof. Procter, and referred for publication.

22. The questions relative to the Sorghum saccharatum, also referred to Dr. Battey, were continued till next year, as his experiments were extensive, and could not be completed in time for the meeting of the Association.

22. No report on the questions relative to the production of volatile oils in Ohio, New York and New Jersey, referred to Mr. Wayne, of Cincinnati, having been received, the subject was dropped from the list.

22. What is the practical value of nitro-prusside of copper, iodine, and other tests, which have been proposed for detecting the adulterations of volatile oils?

Mr. Garrigues, on behalf of John M. Maisch, of Philadelphia, read a full report on this subject, which was accepted and referred for publication.

23. Henry A. Tilden, to whom was referred the question relative to the culture of Arnica in this country, reported verbally, through Dr. Guthrie, that all his endeavors to get the seed had so far proved abortive, and desired that the subject be continued to him till next year, which was granted.

24. The question relative to Silphium laciniatum was continued to Edwin O. Gale of Chicago, who was not able to report in time for this meeting.

25. What are the present sources of American castor, and the method of preparing it for commerce?

Mr. Stearns, of Detroit, stated that Dr. Spence, to whom this subject was referred, expected to be present at this meeting, but not having arrived, and not knowing whether the gentleman had

prepared a report, he proceeded to state that American castor is largely exported from Michigan, being collected by the attachés of the Hudson's Bay Company, hunting in their dominions north of Lake Superior, and by the Indian trappers of Michigan, who, after first drying the sacks when collected, in the usual way, by hanging them in the smoke of the open fires of their wigwams, dispose of them to the agents of fur dealers, who penetrate the hunting grounds. Thus they find their way to our market and to Europe. The great demand for furs for the past few years, has necessarily so glutted the market with this drug that its price has reached the lowest point ever known.

26. The subject of the professional intercourse between physicians and pharmaceutists.

Samuel M. Colcord, of Boston, read an essay on this subject, in which he endeavored to show that some features of this intercourse needed amendment. The paper occasioned some discussion, but was referred for publication as read.

27. The subject of Saccharides, or sugar impregnated with medicinal substances, so as to facilitate their administration, &c., was answered by Eugene Dupuy, of New York, whose paper was referred for publication.

28. The subject of Cod liver oil, referred to R. R. Kent, of Boston, not having been reported on, was dropped from the list.

29. What are the impediments to the culture of the liquorice plant (Glycyrrhiza glabra) in this country; and what essays have been made towards its introduction?

Thomas P. James, of Philadelphia, replied to the queries in a short paper, which was directed to be published.

30. The questions relative to the deterioration of medicines, etc., were continued to Edward Parrish, of Philadelphia, he not having had time to accomplish the results, owing to absence in Europe.

31. Are our native wines applicable for use in pharmacy as a menstruum; are these wines the subject of adulteration; and can the brandy derived from native wine growers be properly substituted for the *Spiritus Vini Gallici* of the Pharmacopœia?

The subject was investigated by Frederick Stearns of Detroit, who read his report and illustrated it with numerous specimens of wine and brandy. The paper was referred for publication.

A volunteer paper "On the influence which Manufacturing Pharmacy has had and is having on the Pharmacy and Pharma-

ceutists of the United States," was read by William Procter, Jr. and referred to the Executive Committee for publication.

A volunteer paper "On the solubility of Medicinal Substances in alcohol," was read by Wm. S. Merrill, of Cincinnati, accepted, and referred to the Executive Committee.

An excellent volunteer paper "On the Peppermint Plantations of Michigan," was read by Frederick Stearns, and was referred for publication.

Then on motion adjourned to 3 o'clock P. M.

Fourth Day—Afternoon Session, 3 o'clock.

The meeting was called to order by the President.

The following named persons were brought forward by the Executive Committee, and elected members of the Association, viz.

Albert G. Palmer, of Washington, D. C.; John Lindsay O'Neal, Philada.; Enno Sanders, St. Louis, Mo.; W. H. Dornin, St. Louis, Mo.; Isaac E. Jones, St. Louis, Mo.; Samuel D. Hindel, St. Louis, Mo.

The Report of the Committee on Weights and Measures was called up, accepted and referred to the Executive Committee.

A motion to appoint a Committee on Weights and Measures was carried, and the Chairman directed to make the appointments. The Chair appointed Alfred B. Taylor, Thomas Hollis and C. B. Guthrie.

The Report on the Preliminary Revision of the Pharmacopœia was next called up, and referred to the Executive Committee.

On motion of Mr. Colcord, a revising Committee of three was appointed to consider the labors of the Committee of this year, and make a final report at the meeting in 1859.

The Chairman appointed Edward Parrish, Charles T. Carney and I. J. Grahame to this important duty.

The Report of the Committee on the Adulteration of Drugs was called up, and referred to the Executive Committee, who were directed to publish an abstract.

On motion, a new Committee of six was appointed on "Home Adulterations." It was distinctly understood in the appointment of this Committee, that they were to confine their report to well authenticated instances of adulteration in drugs, and the best means of detecting such adulterations, so that apothecaries may

be as far as possible able to protect themselves in making purchases. The Chair appointed the following Committee, viz.

Charles T. Carney, of Boston, Chairman; Alphæus P. Sharp, of Baltimore; Richard H. Stabler, M. D., of Alexandria; Edward R. Squibb, M. D., New York; Alfred B. Taylor, of Philadelphia and George W. Weyman, of Pittsburg.

The following Committee was appointed on the amendment of the U. S. Law regulating the Importation of Drugs, viz.

C. B. Guthrie, of New York, Chairman; John L. Kidwell, of Washington; and A. P Sharp, of Baltimore.

The Report of the Committee on Local Unofficinal Formulæ was called up, referred to the Executive Committee, and the Committee discontinued.

The business of obtaining an act of incorporation for the Association was continued to the Executive Committee, to be accomplished as early as practicable.

The Committee appointed to examine specimens made the following Report, viz:

The Committee appointed upon "Articles on Exhibition" are unable to make, on the present occasion, a very flattering report to your body, and regret to say that members have not, as heretofore, brought specimens of their skill as chemists and pharmaceutists. It is the opinion of the Committee that one of the great advantages of being a member of this Association is the information to be obtained by examining specimens of scientific productions, and it is hoped, at our next annual meeting, every member will exert himself and add his mite to the exhibition.

The ethereal and other preparations presented by Dr. Squibb, of New York, were very interesting, and consisted of chloroform, ether, ether fortis, spt. æther. nitr., spt. æther. comp., oleum ethereum, (heavy oil,) etherin, chloropercha, impure oils from chloroform, ferri pulvis, liquor ferri iodidi, and bottles with corks protected by chloropercha.

Dr. Stabler, of Alexandria, presented well prepared specimens podophyllin and jalapin.

Prof. I. J. Grahame, of Baltimore, presented excellent specimens of extract rhei, emp. ammoniaci, extract conii, confect. rosæ, cerat. saponis, and fluid extract of roses. The Professor's productions by his improved process of percolation, were beautiful specimens of pharmaceutical skill.

Mr. Henry Haviland, of New York, presented chemical specimens consisting of sulphate of morphia, valerianate of iron, lactate of iron, ammonio citrate of iron, citrate of iron and quinia, hydrocyanic acid, acetate of morphia, veratria, pure strychnia, biniodide of mercury, valerianate of

quinia, and ten specimens of sugar coated granules and dragees manufactured by Garnier, Lamaroux & Co., of Paris.

Messrs. Tilden & Co., of New York, had on exhibition specimens of fluid and other extracts, resinoids and sugar-coated pills.

E. Donnelly M. D., of Philadelphia, exhibited specimens of the Brazil nut oil, and the following preparations made from it, viz: lead plaster, glycerin, citrine ointment, oleic acid, and margaric acid, accompanied by a beautiful oil painting of the fruit, leaf and seeds of the *Bertholletia excelsa*, which yields the Brazil or cream nuts of commerce.

Samuel Harris, of Springfield, Mass., had on exhibition a compact and valuable sifting machine for druggists. The sifter is suitable for all purposes required by pharmaceutists, and the Committtee would call their attention to its usefulness.

JOHN MEAKIM,
E. DONNELLY.

The Report was accepted.

Prof. Procter on behalf of the Committee appointed to prepare a list of subjects for investigation the ensuing year, and to get them accepted, read the following as their Report, viz:

1. What are the best means of keeping the vegetable extracts, and especially those from narcotic plants, in the dispensing shop, so as to avoid, to the fullest possible extent the inspissation and alterations to which they are subject, by unavoidable exposure in dispensing?

Continued to Prof. I. J. Grahame, of Baltimore.

2. Wine of Ipecacuanha. What is the cause of its tendency to deposit a sediment—has that sediment any medical value—and can the deposition be avoided by substituting another alcoholic menstruum of the strength of wine? *Accepted by Prof. I. J. Grahame, of Baltimore.*

3. The subject of coating pills with sugar, mucilage, gelatin and other soluble substances, so as to mask their taste, is becoming of some importance in practical pharmacy. *Question,*—What are the best materials for this purpose; and what the best and most practical process for effecting it, both on a large scale, and extemporaneously?

Continued to John Canavan, of New York.

4. Mustard.—What is the best formula for a permanent liquid preparation of white or black mustard seed, that may be used as a substitute for mustard plasters? *Continued to Edward Parrish, of Philada.*

5. Dr. Stenhouse has investigated the volatile oil, and stearoptene of Xanthoxylum piperitum, or Japanese pepper. See Amer. Jour. Pharm Sept., 1857. *Question:* what is the true botanical source of what is called "southern prickly ash bark," and does the pungency of that bark and the bark of X. fraxineum of our Pharmacopœia, depend on the same principles as in the Japanese pepper? *Accepted by William S. Merrill, of Cincinnati.*

6. What influence is exerted on the *normal* solvent power of water, officinal alcohol and ether, by admixture with each other as pharmaceutical menstrua, in regard to the solution of various vegetable principles, (like gum, sugar, starch, albumen, resins, volatile oil, etc.,) desirable, or to be avoided in making preparations?

Accepted by Henry Thayer, of Cambridgeport, Mass.

7. What is the value of the phenomenon of iridescence in the essential oil of bitter almonds as a test of its purity?

Accepted by Abram S. Wiley, of Cambridge, Mass.

8. An essay on the best tests to determine the adulterations of wines and liquors. *Accepted by Geo. W. Weyman, of Pittsburgh, Pa.*

9. The chrome and magnesia ores of Lancaster county, Penna., are abundant. *Question*—What are the processes of mining these ores, and what is their commercial history and manufacture?

Accepted by Charles A. Heinitsh, of Lancaster, Pa.

10. It has been shown by repeated trials, that opium, or its extract, that has been treated with ether, is much less liable to cause nausea and headach, than when in its normal state. *Question*—What principles besides the odorous matter is thus removed from opium, and upon which of them does the sickening effect depend?

Referred to Eugene L. Massot, of St. Louis.

11. A synopsis of the History of Pharmacy, and its progress as a science, from the earliest period to the present time.

Accepted by James O'Gallagher, St Louis, Mo.

12. The history and statistics of the production of castor oil in Porto Rico, West Indies. *Accepted by Edward L. Milhau, New York.*

13. The Cacao nut, (Theobroma cacao.) The history of its culture, products and uses in medicine and domestic economy.

Accepted by Edward Donnelly, M. D., Philada.

14. What is the best form of press and pressing box for the pharmaceutical laboratory on a moderate scale, combining great power with simplicity and easy manipulation? The answer to be accompanied by a correct drawing. *Accepted by Edward R. Squibb, M. D., of New York.*

15. What is the best form and material for a still for the pharmaceutist, of from 2 to 4 gallons capacity, capable of being heated by gas or stove heat, which shall combine economy with efficiency and fitness?

Accepted by E. R. Squibb, M. D., of New York.

16. An essay on fitting up and ornamenting drug stores in reference to convenience and good taste. *Accepted by Frederick Hale, of New York.*

17. Oxide of silver, when associated with certain organic matters in pill

masses undergoes decomposition. *Question*—What are the conditions and substances favorable to this change, and how should it be avoided?

Accepted by Ambrose Smith, of Philada.

18. What is the most eligible process for obtaining polygalic acid from senega, in what proportion does it exist, and what are the forms of prescribing it most to be desired as a substitute for the preparations of senega? *Accepted by William Procter, Jr., of Philada.*

19. The bark of Larix Europœa has recently attracted some attention in Ireland and England, as an astringent remedy to allay the chronic discharges from mucous surfaces of the alimentary and urinary organs. *Question*—Does the bark of Larix Americana possess this property, and if so, to what may it be attributed?

Referred to Henry T. Cummings, M. D., of Portland, Maine.

20. The history and statistics in regard to the collection and curing of carragheen, or Irish moss, on the coast of New England, and is it produced by the same plant as the Irish drug?

Accepted by Augustus P. Melzar, of Boston.

21. The culture of Crocus sativus in this country; to what extent is it cultivated for the purpose of obtaining saffron? How does the same compare with that of foreign production, and what are the inducements and the obstacles to the culture of the saffron plant?

Accepted by Frederick L. John, of Philada.

22. Dr. Garrod, in a paper read before the College of Physicians at London, asserts that liquor potassæ destroys the medicinal power of the alkaloids of belladonna and hyoscyamus. *Question*—Is this assertion corroborated by other investigators, and if so, in what manner does the alkali act? *Accepted by R. H. Stabler, M. D., of Alexandria.*

23. Statistics of the manufacture of fine chemicals, on the large scale, in England for exportation to the United States.

Accepted by Henry Haviland, of New York.

24. The drug trade of the United States; its past, present, and future.

Accepted by C. B. Guthrie, M. D., of New York.

25. It is well known that cantharidin, a neutral substance, insoluble in water, is, in its natural state, quite soluble in that fluid; so that water by decoction will wholly remove that principle from Spanish flies. This solubility is attributed to a yellow substance existing in the insect. *Question*—What is the nature of this yellow matter, and in what way does it influence the solubility of cantharidin?

Referred to John M. Maisch, of Philada.

26. It is a well known fact that the odor of Vanilla, like that of tobacco,

does not exist naturally, but is developed by a fermenting or sweating process. It is also known that this odorous principle is not volatile by distillation with water like the volatile oils. *Question.*—What is the true source of the odor of Vanilla, and has it any analogy to coumarin, the odorous principle of tonqua beans?

Accepted by S. S. Garrigues, of Philadelphia.

27. What is the cause of the strong purgative power of the marc of Castor beans left after the expression of the fixed oil.

Accepted by Richard H. Stabler, M. D., of Alexandria.

28. Is the activity of the bark of Cornus Florida due to a crystalline substance? Is the active principle alkaline, acid or neutral? Will it answer as a substitute for quinia? and can it be advantageously manufactured at a low price?

Continued to John M. Maisch, of Philadelphia.

29. An investigation of the relative therapeutic value of imported and indigenous medicinal plants.

Accepted by Henry A. Tilden, of New Lebanon, N. Y.

30. Can the culture of Arnica flowers be profitably introduced into the United States?

Accepted by Henry A. Tilden, of New Lebanon, N. Y.

31. Pepsin, a normal constituent of the juices of the digestive organs of the mammalia, has come into general use as a remedial agent in certain forms of disease. *Question.*—What is the best process for obtaining it, from what animals should it be taken, and what is the most eligible pharmaceutical form for its administration?

Accepted by Alexander Cushman, of New York City.

32. The subject of improved formulæ for the Fluid Extracts, in reference to their more general adoption in the next Pharmacopœia.

Accepted by William Procter, Jr., of Philada.

33. What is the extent of the culture of, and production of sugar from, the Sorghum saccharatum within the United States at present; what inference may be drawn therefrom of its value as a source of this important article; and what is the composition and saccharine percentage of the juice compared with that of sugar cane?

Continued to Robert Battey, M. D., of Rome, Georgia.

34. What is the actual state of the production of volatile oils in the United States, and more especially in Ohio, New York and New Jersey, as regards quantity, quality and locality, together with remarks on the trade in volatile oils generally?

Referred to Lewis T. Lazell of New York City.

35. The culture of the grape has greatly increased in Missouri within the past few years. *Question.*—What varieties of grape are cultivated;

what are the distinctions between the culture of grapes in this and other States; and what are the statistics in regard to the amounts of wine produced in this and former years?

Referred to Alexander Leitch, St. Louis, Missouri.

36. It has been found that Liquor Ferri Iodidi of the Pharmacopœia, frequently assumes a brown color, and that this color is entirely dissipated on exposure to light, or may be prevented entirely by such exposure to light when first made. (See Amer. Journ. Pharm., vol. xxvii. page 218.) *Question.*—To what is this change due, and is it, by such change, therapeutically affected?

Accepted by W. J. M. Gordon, of Cincinnati.

37. What is the correct history of the production and sources of supply of Hemlock or Canada pitch, of Balsam of Fir, and of Oil of Hemlock; and to what extent are they produced in New England and Canada?

Continued to S. P. Peck, of Bennington, Vermont.

38. What are the best vehicles for disguising the taste of Quinia and its salts, and what the most eligible excipient for forming it into pill mass?

Accepted by R. A. Payne, of Washington, D. C.

39. The Silphium laciniatum, or rosin weed of our western prairies, yields a resinous exudation, in appearance like mastic. *Question.*—What is the character of this resinous product, can it be substituted for mastic, and to what extent may it be collected as an article of commerce?

Continued to Edwin O. Gale, of Chicago, Ill.

40. It is well known that many pharmaceutical preparations deteriorate by keeping. What are the prominent instances of this change, what are the best means of preventing or moderating them, and in cases of partial deterioration of valuable medicines, unfit for dispensing, what is the best disposition to make of them to avoid loss?

Continued to Edward Parrish, of Philadelphia.

Respectfully submitted by

WILLIAM PROCTER, JR.,
FREDERICK STEARNS,
Committee.

The Report was accepted and directed to be published.

The following resolution, offered by Mr. Lincoln, of Boston, was carried without dissent:

Resolved, That the thanks of this Association are due, and are hereby presented, to the President, for the dignity and impartiality bestowed by him upon its deliberations, and to the Recording Secretary for his care and application to the increased duties of his office.

The subject of the next place of meeting being now introduced, it was Resolved, That when this Association adjourns, it adjourns to meet in Boston, the second Tuesday in September, 1859, at 3 o'clock, P. M.

The following, offered by Frederick Stearns, was carried without dissent:

Resolved, That the thanks of the American Pharmaceutical Association are due, and are hereby tendered, to the Pharmaceutical Association of the District of Columbia, for the ample accommodations afforded to us, the courtesies extended to us, and for the very agreeable manner in which we have been entertained.

On motion of Mr. Colcord, the Proceedings were now adopted in whole, when the Association adjourned.

DOES NICOTINA EXIST IN GREEN TOBACCO, OR IS IT A RESULT OF FERMENTATION IN THE CURING PROCESS?

By William Procter, Jr.

At a meeting of the American Pharmaceutical Association, held in Philadelphia, Sept., 1857, the following question was suggested for solution, viz.:

"Liebig (Agricultural Chemistry, Amer. edition, page 184) says that the nicotina of commercial tobacco does not pre-exist in the growing plant, but is the result of the fermentation set up during the curing process. *Question.*—If this be true, what is the active principle of green tobacco, and what relation does it bear to nicotina?"

Having accepted this investigation, the author found himself unable to proceed for want of the material, and consequently had to delay it till the tobacco plant bloomed at Philadelphia early in August of the present year. Meanwhile, however, it was determined to examine the seeds of tobacco, assuming them to be the most active part of the plant, judging from analogy as regards lobelia, stramonium, hyoscyamus, etc. Through the the kind offices of Mr. T. Roberts Baker, of Richmond, Virginia, two pounds of the seed, in good condition, were procured last spring.

Tobacco seeds are exceedingly diminutive, of a brown color, and, as viewed through the microscope, are covered with protuberances at intervals over their surface, but are not reticulated as is the seed of Lobelia inflata. 1. They contain 33 per cent. of fixed oil, which may readily be extracted by ether, which also takes up a little resin easily separable from the oil in evaporation. This oil has a light brownish color, easily oxidizes by exposure, and, like the oil of lobelia seed, possesses the drying property. The odor of the recently bruised seed recalls that of castor oil beans when bruised, though not so decided.

2. Four ounces of the bruised seed were macerated in alcohol of 65 per cent. for two weeks, and displaced to get two pints of tincture. This was evaporated to a syrupy extract heated with a fluid ounce of water, and forty grains of magnesia. After occasional agitation for 24 hours the liquid was filtered. Its color had changed darker, and a decided odor developed. It was now agitated with washed ether several times, and the ethereal liquid, after decantation, evaporated. A small quantity of brown semi-fluid matter resulted, devoid of alkaline reaction on reddened litmus paper, and only partially soluble in water.

3. Four ounces of the bruised seeds were exhausted with hot diluted alcohol slightly acidified with sulphuric acid. The tincture was evaporated to two fluid ounces, half an ounce of liquor potassæ added, the mixture poured into a retort previously adapted to a receiver, and heat applied until three-fourths of the liquid had distilled. The tendency to froth was so great, that caution was required in conducting the distillation, and fearing that the distillate might be slightly contaminated with the alkaline liquid in the retort, it was redistilled in a clean apparatus. Thus obtained, the distillate had a strong peculiar odor, a decided alkaline reaction, but did not answer satisfactorily to the tests for nicotina. It was not precipitated by tannic acid, sesquichloride of iron or chloride of gold, but readily by acetate of lead and corrosive sublimate.

4. The third experiment not being satisfactory, and fearing that the excess of potassa may have interfered with the result, it was determined to proceed with more caution. Eight ounces of the seed, well bruised, were macerated in acidulated diluted alcohol for 48 hours, and then digested for three or four hours;

renewing the liquid as it evaporated, when the whole was thrown on a displacement filter, and the seed exhausted. The liquid was evaporated to four fluid ounces, mixed with a drachm of magnesia, and agitated at intervals for 12 hours, when it was filtered. Previously to the addition of the magnesia the liquid had but little odor or color: after the action of that base it had a brown color and decided unpleasant odor, similar to that in the preceding experiment. This liquid was carefully distilled until three-fourths of its bulk had passed. The distillate was decidedly alkaline to test paper. It was now carefully tested for nicotina, with the following results:

1. It was *not* precipitated by tannic acid.
2. Corrosive sublimate caused a white precipitate.
3. Acetate of lead occasioned a white precipitate.
4. Sesquichloride of iron, a brown flocculence.
5. Terchloride of gold, no precipitate at first, but by standing, a brown one.
6. Aqueous solution of iodine, no precipitate, and instantly decolorized.
7. Ioduretted iodide of potassium, at once decolorized, and no precipitate.
8. Sulphate of zinc, a white precipitate.
9. Chloride of cobalt, a pink flocculent precipitate.

It is evident, by comparing this series with that of nicotina in the sequel, that the alkalinity of the distillate from the seeds is not due to that alkaloid, and, as the proportion of seeds was far greater than in any of the experiments with the leaves; it follows that the yield of nicotina, had it been present, should have been greater; whereas the liquid was not as alkaline as that from the green leaves.

The reactions above indicated are, many of them, those of ammonia, but that with cobalt is different, and the nature of the active principle of the seeds, or indeed its real activity, remains undetermined. It would have been well to have tried some physiological experiments with tobacco seed, to see if they are *more* active than the leaves. If they are more active, and possess the same acro-narcotic power, then it would be well to seek for their active principle in another direction than that of

a volatile alkaloid. The first experiment detailed above was in this view, but was not continued.

Tobacco leaves.—Before proceeding to remark on any results with green tobacco, it is proper to state that an Essay on Tobacco by Joseph C. Turnpenny, published in 1833, (Jour. Phila. Coll. Pharm. v.) gives an account of some experiments with green tobacco leaves, in which the recent leaves were macerated three days with water and acidulated water, and then after saturation with magnesia were distilled. The distillate in each instance had an alkaline reaction, smelled strongly of tobacco and had an amber color, and when agitated with ether ceded to that liquid a small quantity of brownish matter. This he deemed to be narcotic, owing to its odor and alkaline reaction. The characteristic tests for nicotine were not applied, because at that time they were not known. A subsequent experiment detailed the results with Kentucky tobacco of commerce, and afterwards the effects of nicotina on a cat are described, but unfortunately it is not stated whether that derived from green tobacco was so tried or not, and the subject is left in doubt.

Dr. Gregory in his Organic Chemistry, (London, 1856, p. 411,) ventures the following remark without supporting it by any authority or experiment. "It is probable that nicotina, besides being found in the fresh leaves of tobacco, is produced in larger quantity during the fermentation to which the leaves are subjected in the manufacture of tobacco." This is an important assertion, as the following experiments will exhibit.

The tobacco plants furnishing material for these experiments were about five feet high, in bloom, the lower leaves varying from 15 to 20 inches in length, and in all respects in good condition. They were grown in the garden of Dr. Wood, and to insure careful results were taken up with roots and earth and transferred to my own premises, where their vegetation continued until the seeds were formed—the leaves being removed from time to time, as they were wanted.

In experimenting with the leaves in their green state, the menstruum chosen has been diluted alcohol, so as to avoid all possibility of fermentation developing an alkaloid not pre-existent. It was also ascertained that the leaves lost 89 per cent. in drying, so that they represented only about one ninth of their weight when dry.

1. Four ounces of green tobacco leaves were sliced and bruised, mixed with four ounces of alcohol, allowed to macerate 36 hours and expressed. The alcohol was removed by evaporating the liquid to two fluid ounces, an excess of magnesia was added to to set nicotina free, if present. The filtered liquor was quite dark colored and strongly odorous, narcotic, but different from that of ordinary tobacco. This liquid was poured into a distillatory apparatus and three-fourths of the liquid drawn over by distillation. The distillate had a slight yellowish tint, was strongly odorous, much like that obtained from the seed, yet not the same. It had an alkaline reaction with test papers, and its odor disappeared in great measures by saturation with an acid. The distilled liquid afforded the following reactions with tests:—1. It was precipitated white by tannic acid, and hence was not ammonia. 2. White by acetate of lead. 3. White by corrosive sublimate. 4. Brownish yellow, insoluble in an excess, by aqueous solution of iodine. 5. A yellowish precipitate by terchloride of gold. 6. A brown precipitate by sesqui-chloride of iron. 7. Acetate of copper, a blue precipitate.

2. Eight ounces of the leaves, perfectly fresh, were sliced and bruised, mixed with half their weight of alcohol containing 16 drops of sulphuric acid, and left for three days, when the liquid was expressed, evaporated to four fluid ounces, saturated with magnesia and filtered. The liquid was then distilled till four-fifths had passed. The distillate was now tested parallel with a solution of nicotina, the strength of which, though dilute, was probably greater than that obtained in the experiment; besides, it should be borne in mind that the distillate could not claim to be a pure solution. It was decidedly alkaline to test papers.

Alkaline distillate from green Tobacco.

1. Tannic acid produced a white precipitate, soluble in acetic acid.
2. Corrosive sublimate occasioned a white precipitate.
3. Acetate of lead caused a white precipitate.
4. Sesquichloride of iron, not in excess, a brown precipitate.
5. Chloride of gold a reddish yellow precipitate.
6. Aqueous solution of iodine causes a yellowish cloudiness, which is soon decolorized by standing.

Solution of Nicotina.

1. Tannic acid caused a white precipitate dissolved by acetic acid.
2. Corrosive sublimate caused a white precipitate.
3. Acetate of lead produced a white precipitate.
4. Sesquichloride of iron, when nicotina is in excess, a brown precipitate.
5. Chloride of gold a yellowish colored precipitate, inclined to red.
6. Aqueous solution of iodine caused a discoloration, which, by standing, became colorless.

7. Sulphate of zinc occasions a white gelatinous precipitate.
8. Chloride of cobalt causes a pink colored precipitate.
9. Bichloride of platinum causes a yellowish coloration, but no precipitate, owing to the great dilution of the solution.

7. Solution of nicotina causes a white curdy precipitate in solution of sulphate of zinc.
8. Chloride of cobalt occasions a slight pinky precipitate in very dilute solution of nicotina, but a stronger solution causes a blue precipitate, which becomes green by standing.
9. Bichloride of platinium causes a yellow precipitate in a strong solution of nicotina.

It will be seen by a comparison of the above reactions, that they agree very closely except in the case of cobalt, which is not accounted for, unless the solution is too dilute to react.

3. Four ounces of tobacco leaves were deprived of their mid rib, laid in the sun till wilted, and then folded up into a close mass and kept in a jar, in a warm place, to induce fermentation, which gradually supervened, the leaves being opened from time to time, as the process proceeded. Their color became brown, and greenish brown, a strong, rank odor analogous to that of commercial tobacco was developed, and the chlorophylle nearly all destroyed. Ammoniacal fumes could also be detected by the nose, and by a rod dipped in muriatic acid. This process was only partially effected in the period of ten days, which was all that could be allowed to it. The leaves were now bruised and macerated in acidulated diluted alcohol 12 hours, expressed, saturated with magnesia, agitated and filtered. The expressed liquid was brown instead of green, as in the preceding case, had a rank odor like that of commercial tobacco, though different, which became more marked after its saturation with magnesia. This liquid was then evaporated very carefully till reduced to two fluid ounces, saturated with magnesia, filtered, and then distilled with great care till reduced to one fourth. The object of this experiment was to ascertain approximately, whether the fermentation of tobacco decreased or increased its nicotin. When the distillate was tested parallel with the preceding series, the results were found to differ in some respects. Tannic acid afforded *no precipitate*, and chloride of gold a very slight yellowish disturbance. The reactions with the other tests were apparently the same as from the distillate of the green leaves. From a consideration of the results of this experiment it is inferred that the fermentation had generated ammonia, and this at the

expense of the nicotina, although the quantity operated on, and the imperfect manner in which the fermentation was conducted, do not justify a positive conclusion. The presence of a very little ammonia in a solution of nicotina prevents its precipitation by tannic acid, but at the same time causes a reddish coloration of the solution, an effect which did not occur in this experiment.

In conclusion, it may be inferred from these experiments,

1st. That tobacco seeds, if poisonous, probably owe their power to some other principle than the nicotina of manufactured tobacco.

2. That these seeds contain about one third of their weight of fixed oil.

3. That nicotina exists as such in growing tobacco leaves.

4. That these experiments do not determine the relative amount of nicotin in green and cured tobacco leaves.

5. That the question whether the fermentation of the curing process increases the proportion of nicotina, as alleged by some writers, or decreases it by generating ammonia at its expense, as would appear from the imperfect results of the last experiment above, is yet to be determined.

From Proceedings of the American Pharmaceutical Association, 1858.

ON PODOPHYLLIN.

By R. H. Stabler, M. D.

None of our indigenous vegetable productions are more uniformly extolled for their valuable and certain efficacy than Podophyllum peltatum; and at an early date in the history of the vegetable materia medica it attracted the attention of observers as a reliable and certain hydragogue cathartic, much resembling jalap in its effects.

Dr. Bigelow subjected it to analysis, but no efforts were made to isolate its active principle that I have been able to discover, until the year 1831, when the root was analyzed by W. Hodgson, Jr., and a paper on the subject read before the College of Pharmacy of Philadelphia. He announces the discovery of a peculiar proximate principle in pale brown lustrous scales; easily pulverizable; unalterable in the air; and of a strong, perma-

nent bitter taste, sparingly soluble in boiling water; very soluble in alcohol; partially so in ether, and when in solution possessed of an odor resembling that of the boiled root: he describes its relation to acids but not to alkalies, and considers it to resemble salicine in some of its chemical properties, particularly in affording a purple color with sulphuric acid. This principle was not experimented with in order to ascertain whether the medical properties of the root reside in it.

Dr. W. P. C. Barton, in his Medical Botany of the United States, published in 1818, gives a faithful representation of the plant in flower and fruit, and refers to the Appendix to that work for chemical analysis, that I have not been able to consult.

Dr. E. Staples has also submitted it to chemical examination, and found as constituents resin, starch, and a peculiar vegetable substance, crystallizable in white silky tufts, (this substance other observers have not obtained: it was probably salts of lime.) He does not state which is the active principle. John R. Lewis, in the year 1847, described, in an inaugural essay, the result of his observations on the root, and reports it to contain vegetable albumen, gum, starch, gallic acid, fixed oil, volatile oil, and a peculiar resinous principle, separable into parts by means of ether, slightly soluble in boiling water, entirely so in strong alcohol: when dry resembles tannin in appearance; soluble in caustic potassa, from which it is precipitated again by an acid; soluble also in carbonates of potassa and soda; had a very bitter taste, and operating in the dose of six grains of the pure resin as a drastic hydragogue cathartic, occasioning vomiting and great debility. It was obtained in opaque feathery scales, but was uncrystallizable. The active properties of the root are considered by him to be owing to the presence of this substance in it.

Simultaneously with the analysis of Mr. Lewis, and previous to its publication, Wm. S. Merrill, A. M., of Cincinnati, obtained and prepared the podophyllin, and through the medium of the physicians of the Eclectic school, first introduced it as an article of the Materia Medica.*

* In justice to the claims of the late John R. Lewis, in reference to podophyllin, we feel bound to state a few facts, as he was a protogé, and engaged in the investigation at our suggestion. 1st. Mr. Lewis made

Dr. Manlius Smith, in vol. xviii. 2d series, page 306, of the American Journal of Pharmacy, describes a good method of preparing podophyllin, which is a favorite purgative with the so-called "Eclectic Practitioners." He says, two grains will purge actively persons of ordinary susceptibility, and three grains generally suffice for almost any one.

John W. Cadbury has examined the proximate constituents of this root during the present year, (1858,) and presented a paper on the subject to the Philadelphia College of Pharmacy, in March last. He prepared a portion of the resin by evaporating the alcoholic solution in a water bath to the consistence of thin syrup, and precipitating by the addition of three times its bulk of water; the podophyllin was deposited in the form of a yellowish powder. This had an extremely bitter taste, and in the dose of one quarter of a grain operates as a brisk purge. It changed color, becoming darker, if exposed to a heat above 90°F.

In conducting my examination of this root, I did not repeat the experiments of previous observers, but endeavored to ascertain by experiment, whether cold water would dissolve any of its active principle, and determine the chemical properties of it. Also, whether it contained a vegetable alkaloid.

The powdered root was exhausted by cold water slightly acidulated with acetic acid, and the liquor evaporated to the consistence of a pilular extract by a gentle heat. Of this I took, in divided doses, fifty-six grains in five hours, without any perceptible effect, hence the portion soluble in cold water or very dilute acetic acid is

his experiments during the summer of 1846, between the two sessions of our School of Pharmacy. 2d. His thesis, as published, was presented to the College in January, 1847, and was not published until the ollowing August. 3d. The claims of Mr. Lewis are entirely scientific, and refer to the discovery of the chemical nature of the active principle of podophyllin, its activity being substantiated by experiments on himself. 4th. The claims of Mr. Merrill more particularly relate to the first preparation of podophyllin as a therapeutic agent in the form now found in commerce. 5th. In regard to the claims of Dr. King (American Eclectic Dispensatory, page 749,) of having used podophyllin since 1835, and of having written about it in 1844 and 1846, we must say, that they are rather therapeutical than chemical, refer to an impure substance and not to an isolated chemical principle, and where wholly unknown to Mr. Lewis.—Editor Amer. Jour. Pharm.

inert, and it would facilitate the process for preparing its active principle, to first exhaust the root with cold water, to remove inert extractive and coloring matter, soluble in that menstruum.

The powdered root, after treatment with water, was dried, packed in a displacement apparatus, and treated with cold alcohol (95°) until exhausted. This tincture was very bitter and nauseous, and of a light brown color, (the root was devoid of taste after this treatment); the tincture was passed through animal charcoal, and evaporated to dryness over a steam bath. An abundant deposit of yellowish resin separated as the alcohol evaporated, without any appearance of crystalline character. This substance was re-dissolved in strong alcohol, and allowed to evaporate in thin layers on slips of glass, and when dry scraped off. This yielded the podophyllin in yellowish scales. It has an acrid, bitter taste, is neutral to test papers, soluble when heated in solutions of the caustic alkalies, frothing like solution of soap; less soluble in solutions of the carbonated alkalies: strong nitric acid decomposes it with effervescence, yielding a crimson colored liquid; sulphuric acid decomposes it; strong acetic acid does not effect it; ether separates it into two resins, proving it to be like others of the resins, compound, or composed of two proximate principles, separable by means of different solvents. I think it should be considered as one body, as that view would be in accordance with the usual practice of chemists with this class of bodies. Although it does not effect test papers, still its property of combining with caustic alkalies to form true resin soaps should entitle it to be classed with feeble acids.

That podophyllin may be advantageously substituted for extract of jalap in the compound cathartic pill of the Pharmacopœia, we have abundant evidence to believe. The object of that preparation was to combine smallness of bulk with efficiency and comparative mildness of purgative action, and a peculiar tendency to the biliary organs. Dr. Eberle, who has frequently used the root, says of it, "As a cathartic I have given the powdered root very frequently instead of jalap, and have always found it active and safe in its operation. It is, however, more drastic and apt to gripe than jalap; nor does it appear to be so prompt in its effects as a cathartic. Calomel renders its operation milder.

Dr. Burzon says, "Its operation is slower than that of jalap, but

it leaves the bowels longer in a lax and soluble condition." "The medical properties of the Podophyllum peltatum," says Dr. Bigelow, "are those of a sure and active cathartic, in which character it deserves a high rank among our indigenous productions. We have hardly any native plant which answers better the common purposes of jalap, aloes, and rhubarb."

Dr. W. P. C. Barton, and indeed all others who have used the remedy, give uniform testimony of its certainty and efficiency.

Resin of podophyllum, or podophyllin, appears to represent all the activity of the root, is efficient, and when properly combined with other purgatives, as it would be in this pill, mild in its effects.

The high price of scammony, together with the fact that it is nearly always adulterated,—indeed the pure article is seldom met with in the drug market,—renders it very desirable that we should find an efficient substitute: and if it can be obtained from this,—one of our own indigenous plants,—at a comparatively low price, and of uniform composition, it will enable us to dispense with an article of such uncertain strength as commercial scammony now is.

Podophyllin is an active hydragogue cathartic fully equalling virgin scammony in effect, resembles it in the character of evacuations produced by it, and is applicable to similar diseased states of the system, and can, I think, be advantageously substituted in any of the preparations of the Pharmacopœia, in which scammony forms an ingredient.

Alexandria, Va., 1858.

From the Proceedings of the American Pharm. Association, p. 1858.

HYPOPHOSPHITES.

By Charles Bullock.

According to Pelouze and Fremy, when phosphorus is boiled with sulphuret of barium, there is formed hypophosphite of baryta and hydrosulphuric acid, the latter of which is disengaged.

Wurtz states, that the phosphorus absorbs the sulphur, and is resolved together, with the water, into hydrosulphuric acid, which combines with the monosulphide of barium and hypophosphorous acid. Finally a solution is obtained consisting of hypophosphite of baryta, and double sulphide of hydrogen and barium. The double sulphide is decomposed by digestion with carbonate of lead.

It is also stated by some writers that the presence of alcohol pre-

vents, in a great measure, the tendency to formation of phosphates, producing more hypophosphites. At the same time converting a large portion of the phosphuretted hydrogen into the non-inflammable condition.

The result of some experiments based on the above reports, are as follows:

Phosphorus was reduced to powder by melting it under alcohol, in a water bath, and agitating constantly while the bottle was cooled under the hydrant. The phosphorus in powder (together with the alcohol used,) was added to a cold saturated solution of sulphide of barium, and digested in the cold during several days, stirring occasionally. A small amount of inflammable phosphuretted hydrogen was evolved. The mixture was then exposed to a temperature under 212°, but little more inflammable gas was given off, and but little smell. The heat was continued till the liquor was no longer alkaline, and ceased almost entirely to darken paper wet with a dilute solution of subacetate of lead. It was then filtered, digested with carbonate of lead, again filtered, and an almost pure solution of hypophosphite of baryta obtained. The baryta salt, precipitated by carbonate of soda, yielded the soda salt, which, when dry, somewhat exceeded in weight the amount of phosphorus employed. During the early stages of the process, no free sulphuretted hydrogen was detected, but at the close of the operation lead paper was darkened when held over the vessel containing the baryta salt.

The amount of heat necessary in the operation was nearly of as long continuance as is required in forming the lime salt. The process does not appear to offer any advantages over the one in general use, except where the object is to obtain a pure acid, which is readily done by precipitating the baryta by sulphuric acid.

Pelouze and Fremy state, that hypophosphorous acid is distinguished from phosphorous acid by the former causing a precipitate of sulphur when added to sulphuric acid, no such reaction being caused by phosphorous acid.

Philadelphia, Sept. 1858.

ON COATING PILLS EXTEMPORANEOUSLY.

By C. F. G. Collins.

To the Editor:

Dear Sir:—Noticing in the last Journal your wish for some method of sugar-coating pills extemporaneously, I send you the following, which I have used for some time, and consider preferable to any other that I have tried in my experiments, as giving the best resu'ts in the shortest time:

Take finely powdered Sugar, 3 parts,
" " Gum Arabic, 1 part.

Mix. Spread a sufficient quantity of this powder on one end of a pill tile, and have a little simple syrup on the other, coat the pills with syrup, then roll them in the powder, repeat if necessary, and roll in a little calc. magnesia or sugar of milk, to prevent their adhering while moist.

After a little practice, pills may be coated in this way in about the same length of time that it ordinarily takes to roll them, and though they may not be quite equal in appearance to those coated in large quantities by the usual method, I think they answer the purpose equally as well.

Beloit, Wis., Sept. 30th, 1858.

THOUGHTS ON "MANUFACTURING PHARMACY" IN ITS BEARING ON THE PRACTICE OF PHARMACY, AND THE CHARACTER AND QUALIFICATIONS OF PHARMACEUTISTS.

By William Procter, Jr.

It has been frequently a subject of serious reflection with the writer what influence the modern custom of manufacturing galenical preparations on a large scale, has had, and will increasingly have, on the Pharmacy and Pharmaceutists of the United States. It is well known that vegetable extracts, fluid extracts, pills of all the officinal formulæ, plasters, cerates, compound powders, in fact nearly all the empyrical organic preparations of any note are now made by various large manufacturing establishments. The formulæ employed by these makers do not agree with each other, nor are they generally in accordance with the Pharmacopœia, either as regards medicinal strength or manipulation. With variable degrees

of conscientiousness as regards the efficiency of preparations; and with varying knowledge and skill to effect the manipulations required, as must be expected; yet it is as rivals for a market, and in the competition which follows, that the most serious evils arise or may be anticipated. These gentlemen, like other manufacturers, take all the means considered usual or honorable by business men in creating a market. They do not wait until the slow and deliberate footsteps of the therapeutist, and his apothecary, have developed the value of remedies, and created a demand for them; but instantly on their announcement in the Journals, and often before their permanence is demonstrated, quantities of preparations are disseminated over the country and vended by parties unacquainted with their merits, or kept in store by druggists as agents until the process of deterioration renders them more or less worthless. There are many preparations which may be advantageously made on a large scale, or which owing to the nature of the material or apparatus used may be better made in one locality than another; but such are the exception, not the rule. It certainly should be the pride, as it is the duty of the Pharmaceutist, to make for himself all those important, though often not permanent, preparations which are termed galenical, as well as many chemical substances; yet there is less necessity for his preparation of the latter, because they are generally so uniform in composition, and are so easily tested, that he has the power of protecting himself from imposition. Not so with the former. How easily may a worthless extract be palmed off on the apothecary, and how utterly impossible, from known data, often is it, for a tincture or fluid extract to be detected when of deficient strength, or when prepared from drugs of inferior quality.

Again, the influence of competition on quality may be illustrated by the two extracts Krameria and Compound Colocynth. Apply to almost any druggist for the officinal Extract of Krameria and you will be disappointed. Why? "Because," you are told, "the root yields so little extract to cold water that it won't pay to make it by the Pharmacopœia!" Go into the market, and you will find compound extract of colocynth varying from 75 cents to $1.50 a pound, when the scammony in a pound of the extract costs nearly $2.50 if of the best quality. Now how can a conscientious apothecary dispense a prescription with such materials? and yet it is often

done by those who know better. But it is not necessary to enlarge further in this direction. Let us consider the effects of this policy of purchasing preparations on pharmacy and pharmaceutists.

Pharmacy may be defined to be the art of preparing and dispensing medicines, and embodies the knowledge and skill requisite to carry them out in practice. But if the preparation of medicines is taken from the apothecary and he becomes merely the dispenser of them, his business is shorn of half its dignity and importance, and he relapses into a simple shopkeeper. How can an apothecary properly educate his apprentices, unless he affords to them an opportunity to make the medicines they dispense? He cannot do it, and hence this policy has the gradual but certain effect to depreciate the standard of pharmacy and the status of its practitioners. Young men who enter such establishments scout the idea of its requiring four years to learn the business; and after a two years' experience in vending preparations and compounding prescriptions, are qualified clerks! at least in their own estimation. Of what avail is it to urge on such young men the advantages of chemical and pharmaceutical studies, or of graduating at a pharmaceutical institution, when they see that practical pharmacy means the retailing of drugs and preparations furnished ready for use by the druggist and "manufacturing pharmaceutist?" What is the object of our Association but to elevate the standard of practice—to give uniformity and value to the officinal preparations—to infuse so much of science and accuracy into our art that it shall cease to be a trade only—and above all, in the language of the original preamble to our Constitution, to "elevate the professional character of Apothecaries and Druggists throughout the United States," by making them what they ought to be, masters of their art, in the sense of understanding its theory as well as its practice? In Germany and Poland, the Apothecary is required by law to make most of the preparations he sells, and thus is accountable for their quality. If it were so here, our numbers would dwindle down to a fraction of that great array that constitutes the dealers in medicine of all grades.

In making these remarks, it is from a sense of the importance of the subject to the lasting interest of our profession. Most of the gentlemen who are very largely engaged in manufacturing pharmacy are friends of the writer, who is moved by not the slightest degree of

personal feeling in making the remarks;—they are thrown out as a caution to us all, that we who claim to have the welfare of our professional body at heart, may consider deeply the bearing which such innovations are having on the development and professional health of its members, and take such measures as will turn the current of this evil into a channel where its influence may be regulated as far as possible. The first remedial measure should be to insist on the clear and distinct annunciation by manufacturers of the proportional strength of preparations, and the processes employed, especially in reference to the menstruua used. Secondly, the Association should use its best endeavors to compel the adoption of uniform strength and formulæ for all standard preparations not in the Pharmacopœia, and an adherence to the processes of that authority for those that are found in it. And thirdly, to use efficient means to get the next edition of the Pharmacopœia to include all those preparations of worth, which are now known and used as unofficinal preparations.

From the Proceedings of the American Pharmaceutical Association, 1858.

ON TWO ÆTHEREAL ILLUMINATING MATERIALS, PINOLINE AND OLEONE.

By Dr. Hermann Vohl.

Pinoline.—The distillation of American resin, which is a mixture of the exuded resins of various species of *Pinus*, has been considerably extended of late, inasmuch as the products of distillation are employed in the preparation of the so-called patent grease for waggons and engines. The author has submitted a subsidiary product of this distillation, the so-called essence, to a minute investigation.

When the distilling vessel, which must be capable of holding about 1000 lbs., is charged with resin, the water existing in the resin, and with it a small quantity of a light essential oil, are expelled at the commencement of the distillation. The amount of the light oil, which is usually denominated "essence," averages 2 per cent. The water which accompanies the essence has a strong acid reaction, in consequence of its containing a considerable amount of acetic acid (many resins also furnish formic acid). The essence was usually rectified and sold as oil of turpentine. The

high price of true oil of turpentine caused the purified essence, which was cheaper, to find a good market, and this would have been all very well, if this substance had been capable of the same applications as oil of turpentine. In general turpentine is employed in the preparation of varnish to dissolve the different resins, it also serves to thin oil colors, and cause them to dry rapidly. When oil of turpentine is exposed to the air, a portion of it will evaporate, whilst another portion will combine with the oxygen of the atmosphere, that is, become resinified, and consequently leave a varnish-like coat. Consequently when oil colors are diluted with oil of turpentine, no dulness or dryness of the colors will be produced thereby, unless the dilution has been carried too far.

If the behaviour of this essence be compared with that of oil of turpentine, the distinction is most striking. This essential oil is indeed subject to a resinification, but in a very small degree; consequently when this oil is employed as a substitute for oil of turpentine in diluting oil colors, less resin remains after desiccation, and the coating appears less shining and adhesive. This property of the essential oil of resin deprived it of its credit, and it became necessary to find another application for this subsidiary product, which is obtained in considerable quantities. From the author's investigation, the composition of the oil is nearly the same as that of oil of turpentine: and it was to be anticipated that, like the latter, it might be used for illuminating purposes. The "essence," which almost always has an acid reaction, was treated with solution of caustic alkali, and then blown off by steam.

The product thus obtained was limpid, and had an agreeable thyme-like odor, from which probably has originated the idea entertained by the public that this oil is turpentine to which oil of thyme has been added in order to disguise the odor. The author called this oil *pinoline*, and under this name it was first brought into commerce as a fuel for lamps, in 1856, by Brambach & Co., the possessors of a factory for the distillation of resin at Berge-Borbeck. It is burnt in lamps of peculiar construction, and gives a light similar to that of camphine. Pinoline, as already stated, is subject to resinization, by which it loses in value, inasmuch as the wick becomes impregnated with the resin formed, when the absorbing power is diminished, and the lamp will smoke. These disadvantages ren-

der it necessary that the pinoline should be carefully protected from the atmosphere, and always sold freshly prepared. Its specific gravity is the same as that of camphine and oil of turpentine; it increases during resinification.

Oleone.—In large towns a considerable quantity of waste soap-water is always to be had, without taking into account the lyes obtained in the washing of wool, which are greatly impregnated with fat and oil. In towns where there is a manufacture of gas from resin, or where large establishments possess their own gas apparatus, the fat and oil of these waste fluids may always be made use of. But if a town be supplied with coal-gas, the employment of this waste fat for the production of gas is of no importance, and it is only used in the preparation of a very poor soap, which is by no means favorably distinguished by its unpleasant odor. In the year 1856, the author was commissioned to undertake an investigation of this fatty mass, and to find an advantageous use for it. He started from the point that it must be capable of conversion by dry distillation, into an excellent ethereal illuminating material, and at the same time took into consideration the behaviour of the lime-salts of the organic acids under similar circumstances, when acetone-bodies of the respective acids are produced.

To obtain the fatty acids, the soapy fluids are mixed with a few hundredths of solution of chloride of calcium, by which all the fatty acids are separated, in combination with lime, in the form of a caseous precipitate (lime-soap). The precipitate is separated from the fluid by straining through a cloth, and freed from the greater part of the mechanically adherent water by a slight pressure. It is then mixed with 10 per cent. of unslacked, coarsely granular lime, and submitted to dry distillation, either in an iron retort, or in a cast-iron pot with a flat cover. At the commencement of the distillation, a quantity of aqueous vapors is produced, but these soon cease, and give place to vapors with an empyreumatic odor. As soon as gases burning with a clear flame made their appearance, the true decomposition commences. By a good refrigeration, the escape of the volatile oil is to be avoided.

When the gas burns only with a pale blue flame, and consists for the most part of carbonic oxide, the operation is completed; the receiver then contains an aqueous fluid upon which a considerable

quantity of a butyraceous mass floats. This possesses a penetrating odor of burnt fat. After the water is removed from the oleaginous product, the latter is distilled in an iron or copper pot, by which one-third of a very volatile and permanently fluid is obtained; the second third is thickly fluid, and the last third solidifies in the cold. These three different products are treated in the way recommended by the author for photogene, with this difference, that instead of sulphuric acid of spec. grav. 1·834, acid of spec. grav. 1·704 is employed.

By distillation with steam a limpid, light oil of spec. grav. 0·800, possessing but little odor, is obtained; to this the author has given the name of *oleone*, with the view of indicating at once its origin, and the similarity of its composition to that of acetone. It is an excellent lamp fuel, and is not subject to become resinified. It may be burnt in the same lamps as photogene, camphine, and pinoline.

The second product, which is thickly fluid, is free from oxygen and not subject to oxidation in the air; it may be employed with advantage for greasing the fine parts of machinery, and may also be burnt. From the third product of the fractional distillation the author prepares a solid hydrocarbon resembling paraffine; it forms an excellent material for candles.—*Chem. Gazette, Sept.* 15, 1858, *from Polyt. Journal*, cxlvii. p. 304.

ON FLUID EXTRACTS.

By Henry Thayer, M. D.

The want of officinal formulæ to govern the manipulations required in the manufacture of Fluid Extracts, leads to a diversity of quality and strength, as prepared by different manufacturers. As the favor shown by physicians to this class of preparations increases, this want begins to be felt, and the attention of Pharmaceutists is directed to the subject.

I propose in this paper, briefly, perhaps imperfectly, to state the theory and principles which I consider involved in this branch of Pharmacy.

I should define a Fluid Extract to be a permanent concentrated solution of the active principles of a vegetable remedy, of known standard strength. It should also be a plain extract of the plant, as much so as a solid extract, that physicians may

form from them combinations to suit their own ideas, and according to the case before them. To prepare combinations beforehand, calculated to meet all circumstances in disease, is not the business of a manufacturing pharmaceutist, but is generally claimed as the right of those who vend patent medicines. It has always appeared to me that to decide upon the therapeutic value of any remedy, was the task and privilege of the physician, and that all that is required of the manufacturer is to be able to say, "Whatever virtues the raw materials may possess, the same, unaltered, will be found in this Extract."

In order to produce reliable Fluid Extracts the following points are to be studied: selection of raw material, exhaustion of strength, concentration, and preservation.

The selection of raw material requires knowledge and experience, and should be made with great care. It is obvious that for a preparation of this kind, no stock except the very best should be used. We often hear it remarked, that a lot of merchandise, just received, *which is good enough for tinctures and extracts*, can be sold very low; but, unfortunately for him who purchases, the quality of the resulting preparation is generally low in proportion; therefore the quality, not the price of raw material should be the criterion. Notwithstanding the variations which exist in the medicinal strength of roots, herbs, and barks, it is a fact that they can always be found in the market, of good quality; for the rules which should govern the gathering and curing of vegetable remedies are now well understood and extensively practised. He who by experience has acquired the requisite skill, can generally judge by the evidence of his own senses, its looks, taste and smell, and for doubtful cases, or remedies like cinchona and jalap, he has the chance to apply chemical tests and actual experiment, which will with certainty show its value. One who watches the market, and "seizes upon opportunity," will seldom fail procuring satisfactory material. I take it to be a general law, that nothing can be worked over, without incurring some loss, some waste—that through the whole range of manufactures this is true. How important then that in this operation of making Fluid Extracts, where, with the most dextrous and careful manipulation, some loss may be incurred, the material used should be of the very best.

The present state of Pharmacy points at once to the fact,

that cold percolation, with the proper menstruum, is the true way to exhaust from a plant its soluble medicinal principles. The details of this process have been so often described that any remarks from me are hardly required. Quite recently an able paper upon this subject, with illustrations of apparatus, has been published by Dr. Squibb, in the *Journal of Pharmacy*. It may be well, therefore, to proceed at once to the choice of a menstruum.

Our fathers in Pharmacy, when they selected the officinal diluted alcohol as a menstruum for making tinctures, chose one that is an almost universal solvent for the principles of vegetable remedies. The union of alcohol and water, in equal proportions, forms the menstruum proper for by far the larger portion of those articles from which Fluid Extracts are made. Even jalap and mandrake, the active part of which are resins, will yield to it their virtues. Although these resins, when obtained and purified, will not dissolve in this menstruum, they, in their natural state, combined with extractive, are dissolved and extracted from the root. The use of diluted alcohol for plants of a resinous nature has an advantage over the plan of percolating first with alcohol, then with water, and subsequently uniting the products. By the first, the original union is not broken, the resin and extractive are exhausted together, and in the perfected Extract this union is easily preserved: by the latter method, much precipitation occurs when the two products are mixed.

For those articles whose properties are of a volatile nature, as buchu, valerian, and cubebs, this menstruum will not answer, for this reason,—unless the menstruum be more volatile than the contained principles, the latter will be lost during evaporation; therefore, for this class of substances, alcohol or ether is required, either of which can be distilled off, leaving behind the desired principles.

As a general rule, therefore, we may say, that for articles not possessing volatile principles, diluted alcohol is the proper menstruum. This rule has exceptions, as in the case of senna, which forms a finer Extract with cold water, and Cannabis Indica, which requires strong alcohol. The other class, those possessing volatile principles, should be percolated with deodorized alcohol until exhausted, then with water, and the two products

separately evaporated, and mixed. The amount of the liquids after concentration should be so arranged that, when mixed, the percentage of the menstruum in the Extract shall be just high enough to hold in solution the substances extracted by the alcohol. If so calculated, the larger part of the aqueous extract will dissolve, and the sediment which falls will possess little value.

There is little needs to be said upon the subject of evaporation. On the large scale, much is gained by using the vacuum pan, while for smaller operations the water bath must be resorted to. This subject of evaporation is ably treated in the United States Dispensatory, and I know of little to add. The degree of concentration for Non-officinal Extracts should be governed by the following rule, which appears most applicable, viz., That each fluid ounce of Extract should represent one ounce of raw material.

The great difficulty in perfecting this new form of Extracts has been to conquer the tendency which vegetable substances possess to enter upon a state of acetous fermentation. To counteract this tendency, the officinal directions are, except for oleo-resinous and purely alcoholic Extracts, to add sugar, thus forming syrups. Experience has shown that such preparations are not permanent, and the rule will only answer for those that are made in small quanties, to be kept for a short time. Another and serious objection is that in the precipitates the lumps which form during the concentration of Hydro-alcoholic Extracts are with difficulty subdivided so as to give the Fluid Extract uniformity; and, again, however well the extractive matters are suspended, they are apt in time to settle, and form a concretion. This class of preparations should be so prepared that they will be permanent preparations, admitting of transportation to any climate, of equal value at all times and under all circumstances. Alcohol approaches most nearly the character of a permanent preservative of any substance available for this purpose, and possesses this advantage,—that when added to the evaporated liquid, the precipitates re-dissolve, and form a beautiful solution. The only objection to its use arises from its stimulating effects—an objection, however, that is but little urged, and which, except in rare cases, has little force. The proportion of alcohol requisite is seldom over 20 per cent., and the small amount of the

dose of Fluid Extracts, renders its presence, therapeutically considered, of small account.

I have found an advantage in adding a small portion of sugar to those Extracts intended for internal administration, but its use is objectionable in those which are intended for external use. Placed in the still before evaporation, it protects, in some measure, from injury by heat, assists the solution of the precipitates, and disguises the disagreeable taste of many Extracts.

Fluid Extracts, prepared according to these principles, especially if evaporated *in vacuo*, retain the taste, color, and freshness of the original tinctures, and certainly appear preferable to the muddy, acetous preparations which sugar alone forms. I have now on hand samples of these preparations, made four years since. In most of them I find the transparency, taste, and flavor as perfect as when first made; in others there is a slight deposit, but in no case of very great amount. It will, however, be a safe rule, to shake all Fluid Extracts when dispensed or used.

Perfection, in the abstract signification of the term, can never be reached in any science. As we approach it, the steps grow shorter, and, with all our labor, we only attain an approximation to it. In thus briefly and hurriedly glancing at the principles which govern my manipulations, I do not seek to claim for them perfection, but hope that what I have said may call forth remarks from others, and that by a mutual interchange of ideas—a "rubbing together of understandings"—this branch of Pharmacy may arrive at an approximation of perfection.

The practical application of the principles of which I have spoken is very simple. I append a formula, as an example:

Fluid Extract of Gentian.

Take of Gentian Root, in coarse powder . .	℥xvj.
Diluted Alcohol	q. s.
Sugar	℥iij.
Alcohol	f. ℥iv.

Properly macerate, and percolate the root with the diluted alcohol, until its strength is exhausted. Having added the sugar to the tincture, evaporate in a water bath to twelve fluid ounces. When cold add the alcohol.— *The Peninsular and Independent and Med. Journ., Sept.*, 1858.

ON DILUTED PHOSPHORIC ACID.

By William S. Thompson.

This preparation is not an officinal of our Pharmacopœia; and of the British Colleges only in that of the London, which directs six drachms of phosphorus to be added to a mixture of four fluid ounces of nitric acid sp. gr. 1.42, and eight fluid ounces of water, in a retort. The retort is placed in a sand-bath, and heat is applied until six fluid ounces are distilled, which are returned to the retort, and six fluid ounces more are distilled, which are rejected. The dilute acid in the retort is now evaporated in a platinum capsule until all traces of nitric acid are removed, and it is diluted with distilled water sufficient to make it measure one pint, imperial measure; its specific gravity is stated at 1.064.

In the process, as above conducted, there is no room for loss of phosphorus, if the retort is of sufficient capacity, unless by accident; consequently, the specific gravity of the resulting preparation is invariable. The process is objectionable, however, as being tedious and troublesome, and the quantity of phosphorus operated upon must necessarily be small; it is, therefore, desirable to substitute a process by which a larger quantity of acid can be prepared at one operation; which is attended with but little risk, and which affords a result fully equal to the process of the London College; while at the same time, it is more simple in the details of its operation.

The process which I now offer, for the consideration of the College, originated with Mr. Geo. W. Andrews, and it has been successfully practised by him and myself, in preparing large quantities of phosphoric acid for other purposes, for several years past; it is as follows:—

Take of Phosphorus, - - - 4 ounces Troy,
Nitric Acid. sp. gr. 1.42, 26 fluid ounces,
Water, - - - - 54 " "

Mix the nitric acid and water in a porcelain dish of the capacity of not less than six quarts, and add the phosphorus to the mixture. Having the dish properly arranged for the application of heat by means of a spirit lamp, take another dish, of

about half the capacity, invert it over the surface of the liquid in the larger dish, and apply a gentle heat, which is to be continued until the complete oxidation of the phosphorus. The operation goes on slowly, and will be completed at the expiration of eight hours, attended with no loss of phosphorus and with but little waste of nitric acid, as will be seen by comparison of the quantity used with the quantity of acid of nearly the same strength directed by the London College.

When the phosphorus has entirely disappeared, the small dish should be removed, and the heat continued until no trace of nitric acid is left. The product now weighs about 11½ ounces Troy, measures 7 fluid ounces, and requires 91 fluid ounces of distilled water to reduce it to the London standard, sp. gr. 1.064 at 60° Fahrenheit.

Whether diluted phosphoric acid, prepared as above, possesses any advantage, therapeutically, over a boiled solution of ordinary glacial acid, I am not prepared to say: but I have not succeeded in preparing that beautiful crystalline salt, the acid triphosphate of potassa, with the latter acid, but which can be prepared with great facility from the diluted phosphoric acid; having an excess of acid in the solution when set aside to crystallize.

The expense of preparing phosphoric acid by the process above given, may easily be calculated by adding to the cost of the given quantities of phosphorus and nitric acid, the value of 2¼ pints of commercial 95 per cent. alcohol, which is about the quantity consumed. In a large laboratory, where the facilities for the application of heat are cheaper, the expense of preparing the acid may be greatly lessened. The proper regulation of the heat in the foregoing process, is of the first importance; it should be applied gradually until the yellow fumes caused by the nitric oxide coming in contact with the atmosphere, are observed; it should remain at the same point until the completion of the process.—*Journ. and Trans. Maryland Col. Pharm. Sep.* 1. 1858.

ACETUM OPII OR "BLACK DROP."

By Israel J. Grahame.

This preparation of Opium was originally made under the name of *Black Drop*, about 125 years ago, by Edward Runstall of Durham, England; and, notwithstanding its variable character, resulting both from the quality of the opium and mode of preparation, it still continues to enjoy a considerable share of favor from the medical profession, which certainly affords an evidence of its efficiency as a remedy in the treatment of disease. It is supposed to possess advantages over laudanum, by the absence of certain disturbing principles contained in the latter taken up by the alcoholic menstruum, and the conversion of the native meconate of morphia into the acetate. However deserving this claim for superiority over laudanum or other preparations of opium may be, it is not now my province to consider; but, a preparation of so active a medicinal agent as opium, which has stood the test of so many years of favorable use, affords a subject worthy the attention of pharmaceutists with reference both to the strength and process of preparation. It is these two points that I propose to consider in this paper,—not because the same subject has not been amply and ably treated of before; but because I conceive difficulties and discrepancies have resulted from the use of the medicine in the hands of many, for want of the establishment of a proper uniformity in both these particulars. First, with reference to the strength of the article. By consulting the *Dispensatory* we find the preparation according to the formula of the U. S. P., to represent twice as much Opium as Laudanum and to contain *Aromatics;* while the Dublin makes a vinegar of Opium *without aromatics*, of about the same strength as Laudanum; the Edinburgh on the other hand, directs a preparation representing about three times the quantity of opium as in laudanum, also excluding aromatics.

Now all these formulæ of the pharmacopœias are intended as substitutes for the old *Black Drop*, and in order to judge correctly how nearly they approximate in strength to the original it will be well to examine what is supposed to represent the original formula, which is very nearly couched in the language of the formula given in the first edition of the U. S. P., which says, "take of *Opium* half

a pound; *Vinegar* three pints; *Nutmeg*, bruised, one and a half ounces; *Saffron*, half an ounce. Boil them to a proper consistence; then add *sugar* four ounces; *yeast* one fluid ounce. Digest for seven weeks, then place in the open air until it becomes a syrup; lastly, decant, filter, and bottle it up, adding a little sugar to each bottle."

That the directions here given are altogether deficient in precision, and if followed would invariably produce uncertain results, is too obvious to admit of comment; hence the Pharmacopœia has wisely rejected it; but in doing this they have erred on the other hand by substituting a preparation which may be regarded one third weaker, for the following reasons: In the above formula we start with *six ounces* of Opium and *three pints* of Vinegar, and boil to what the formula terms a proper consistence, which may mean to reduce the quantity of liquid one-half, or more or less, as the operator may see proper; but suppose we fix it at *two and a half pints*. The next step in the process is to add sugar and yeast, and digest seven weeks; then place it in the open air until it becomes a syrup. The supposition is very natural, that the evaporation requisite to give it the consistence of even a thin syrup, would certainly reduce it from two and a half to *one and a half pints*. If this reasoning is correct, the formula proposes a preparation representing *four ounces of opium* to each pint, supposing the opium to be exhausted by the treatment. In addition to this probable result, I believe the original formula stated that one drop was equal to three drops of laudanum, and this certainly has been the popular idea prevailing with regard to the strength of the medicine; and I very much doubt whether there are many physicians who have taken the trouble to inform themselves of the actual difference existing between the present strength of the Pharmacopœia and that formerly made; and under the impression that the preparation continues to be the Black Drop of old, they prescribe it accordingly and are frequently disappointed in not realizing the full effects of the remedy.

Entertaining these views I cannot but indulge the hope that our forthcoming national convention for the revision of the Pharmacopœia will consider this as well as many other formulæ worthy of their notice, so that each pint of the *Acetum opii* may represent

three ounces and three quarters opium, instead of *two and a half ounces*, as at present.

Having had occasion recently to prepare the article, and desirous of completing it in a short period of time, I was induced to adopt some expedient by which the process of displacement could be effectively applied in accordance with my usual method, without macerating. The gummy nature of opium being the obstacle in the way, my first object was to find some substance to mingle with the ingredients, that, while it would not be incompatible with the compound, would answer the desired purpose of properly dividing the opium so as to be completely acted upon in all its parts, by the menstruum. The Aromatics prescribed in the formula, to a certain extent accomplish this object, but something is needed in a larger proportion to thoroughly answer the end in view. Sand which in many cases is recommended, I have never found to answer a good purpose. It so happened in this instance that I had on hand a lot of powdered *Poppy Capsules* designed for the preparation of "Syrup. Papav." and it occurred to me that it would effectually meet my wants, which proved to be the case. I was also induced to substitute glycerin for sugar, not from any positive knowledge that any advantage would arise by so doing, but under an impression that it might be the means of preventing, partially at least, the deposition which occurs in this preparation of opium after standing some time, no matter how nicely it may have been filtered from the dregs in the first instance. In accordance with these ideas I devised the following formula, the result of which, together with the residue, I exhibit samples to this meeting.

Take of Opium, in powder, four ounces,
Nutmeg, in powder, six drachms,
Saffron, in powder, two drachms,
Poppy Capsules, in powder, two ounces,
Glycerin, three fluid ounces,
Diluted Acetic Acid, a sufficient quantity,

Mix the powders intimately, and distribute over the mixture 1½ ounces of the diluted Acetic Acid and by means of the hands rub it into the powder so as to dampen it uniformly; then pack moderately in a suitable displacer; and having placed over the surface a piece of perforated filtering paper pour on diluted Acetic Acid

and when ten fluid ounces of the liquid shall have passed, put it aside; continue the percolation till the fluid which passes is comparatively free from taste; evaporate this latter portion of liquid in a water bath to four fluid ounces, to which add one half fluid ounce of acetic acid, and mix this with the ten ounces first obtained: then add the glycerin and filter. The product should measure seventeen fluid ounces.

The advantages resulting from this process consist in the preparation retaining its full aromatic properties, and the economy of time, it having only required a little over two hours to procure the first ten ounces of liquid, which contained the bulk of the active portion of the compound, and but twelve hours for the entire completion of the preparation, including some two or three hours loss, so that virtually it was, and can be, prepared in about eight or nine hours.—*Ibid.*

DISTILLATION OF PEAT, BROWN COAL, &c.

By B. H. Paul, Ph.D.

Since 1847, Dr. Vohl has been engaged with the investigation of the methods by which volatile oils, paraffin, asphalt, and creosote may be obtained from the tar produced by destructive distillation of bituminous minerals. These experiments have all been made with at least one hundred pounds of peat, &c., in order that the results might have a technical value, and serve as a guide for conducting operations on a working scale. Smaller experiments made with a few pounds of material are likely to lead to error, and are therefore valueless as regards the working of a factory, from furnishing scarcely an approximative basis for judging of the value of any particular material. Moreover, the phenomena presented in large experiments differ somewhat from those recognizable in other cases, and hence facts of importance as to the working on a large scale may be overlooked.

Among other materials that have been examined is the Hanoverian peat, which is tolerably hard, and contains but few root fibres. Its color is dirty brown, density small, and the amount of ash also small.

Successive quantities of this peat were distilled in an iron retort similar to those used for making gas, three feet long, one foot wide, and ten inches high. The discharge pipe was four

inches diameter, and the retort was closed by an iron plate covered with clay and fixed by a screw. The discharge pipe of the retort was six inches long and somewhat inclined. This pipe was covered with packing cloth, kept moist during the distillation, and was connected with two two-necked cylindrical vessels of sheet iron cooled in the same way as the discharge pipe.

By this means the gas was separated from the condensible products, and was then passed through some twenty feet of condensing pipes before being collected in the gasometer.

After charging a retort, the distillation was commenced at a gentle heat in the first instance, and terminated at a red heat. At first, large quantities of water-vapor were disengaged, together with a little empyreumatic oil, and it was not until the greater part of the mechanically combined water was separated, and after the temperature had been raised to dull redness, that a copious evolution of vapor took place, which, when condensed, flowed in a thin stream into the receiver.

The gas that appeared during the first stage of the operation was not combustible; consisting chiefly of carbonic acid. Afterwards, at a higher temperature, it became combustible, burning with a bright clear flame, and afterwards with a pale blue flame, being in fact then carbonic oxide.

Sulphuretted hydrogen, which is produced in such large amount in the distillation of brown coal, &c., does not appear among the distillation products of peat; but at the end of the operation a sensible amount of cyanide of ammonium was disengaged.

The volatile liquid products of distillation collected in the several condensation vessels were mixed together. The tar, being of less density than the water liquid, was separated with great ease by means of a funnel. According to the way in which the distillation is managed, this tar has a density of from 0.870 to 0.895.

The Hanoverian peat was found to yield on the average—

Tar,	9.0630
Ammoniacal water,	40.0000
Charcoal,	35.3120
Gas and loss,	15.6250
	100.0000

The carbonaceous residue presented the original form of the peat, but its volume was reduced about one-eighth. It was of a dark color, and burnt like good wood charcoal without giving off any odor. It left a small quantity of ash, somewhat yellow, from the presence of oxide of iron. This charcoal bore a blast tolerably well, and might therefore, be of use for metallurgical purposes.

The tar, after being deprived of water, was subjected to fractional distillation, the several products treated with alkalies and acids for the purpose of purification, and then again distilled by means of steam. In this way there were obtained, besides paraffin and asphalt, two different oils and a considerable amount of creosote and carbonic acid.

The watery liquid yielded a considerable amount of acetic acid and ammonia, as well as butyric and metacetonic acid.

The per-centage amount of these products from the tar were—

Light oil, sp. gr. 0.830 . .	19.457
Heavy oil, " 0.870 . . .	19.547
Asphalt, ...	17.194
Paraffin, ...	3.316
Creosote and loss, . . .	40.486
	100.000

The light oil was a clear, colorless, mobile liquid, of not unpleasant odor. It was quite free from creosote, and consequently did not become brown by absorption of oxygen when exposed to the atmosphere. It was perfectly volatile. As a solvent, it was remarkably efficacious upon resin, fat, and caoutchouc, leaving these substances again on evaporation, without any smell. This oil was free from oxygen, and was found to have a composition similar to elayl gas. When lighted, it burnt with a smoky flame and considerable light. In lamps of suitable construction, it burnt without charring the wick, which required cutting only every third day. The charring of the wick is chiefly due to the presence of creosote in the oil.

The nitro-compound of this oil is analagous to nitro-benzol, and like it, may be substituted for bitter-almond oil in perfuming soap, &c.

The heavy oil was of a pale yellowish-brown color, had little

smell, and was less volatile than the former oil. It could be burnt in lamps, and gave a better light than the light oil. However, it is necessary to trim the wicks after some eight hours. This oil may be used with advantage for preparing gas.

When this oil is mixed with fat or resinous soap, it furnishes an excellent lubricating material, that does not solidify in winter or by exposure to air.

The asphalt obtained by the distillation of the tar has a fine black color, and may be used for making black varnish or lamp black.

The paraffin obtained from peat tar is very hard and translucent, and is well adapted for making candles. The amount of paraffin yielded by peat is twice as great as that from leaf-slate, and is nearly the same as that from the brown coal, or lignite, of Aschers-leben. It may be mixed with some ten per cent. of stearin without injury.

The charcoal produced in the distillation of peat may be used as fuel in the works, and the ash may be servicable as manure.

The ammoniacal water would of couse be treated in the usual manner, so as to obtain sulphate of ammonia.

The gas given off in the distillation may be advantageously used for heating the rectifying apparatus, and when purified with hydrate of lime it is a good illuminating gas. Four retorts yield as much gas as is requisite for working a fifth retort, when used as fuel with proper precautions.

The creosote yielded is of a dark brown color, and contains from 80 to 85 per cent. of pure creosote and carbolic acid. It is an excellent material for impregnating wood to be used in ship building, railway sleepers, &c., and it may be employed in making lamp-black. It is to the presence of this substance that the disagreeable smell of the oils obtained from peat tar is due. Some of the oils occurring in commerce contain from six to twelve per cent. of creosote, and consequently become brown when exposed to the atmosphere.

The treatment of the oils distilled from the tar is very simple. By the fractional distillation there are obtained a portion of oil that remains liquid, and another portion that solidifies on cooling. The former is mixed with caustic alkali, for the purpose of separating creosote and any other substances of an acid cha-

racter that would interfere with the treatment with sulphuric acid. By this means the oil is rendered nearly colorless, and freed from a strong penetrating odor. After decanting off the oil from the alkaline liquid, it is mixed with ten per cent. of sulphuric acid, in a leaden vessel. Considerable elevation of temperature takes place, and after a while the oil is run off into a vessel from which it is distilled by means of a jet of steam, after any adhering acid has been neutralized by caustic alkali.

The oil thus obtained is clear, colorless, free from creosote, and without unpleasant smell. That which remains in the distillation vessel is fit for lubricating purposes, and does not require any further treatment.

The paraffin oil is in like manner treated with alkali and acid, and distilled by steam. The residual paraffin mass is placed upon a strainer connected with a suction apparatus, consisting of a vessel of water, with a discharge pipe thirty-two feet long at the bottom, dipping under water at a much lower level, and furnished with a cock. By discharging the water, the paraffin is left upon the strainer as a pearly white dry mass, without smell. In order to separate any remaining trace of oil, it may be melted, mixed with ten per cent. of the white oil, and after the mixture has been cooled, the liquid portion may be separated by pressure. *London Pharm. Jour., Sept.* 1858.

CINCHONA BARK OF NEW GRANADA.

Hr. Karsten states that, by numerous comparative analyses of the yellow bark of *Cinchona lancifolia*, Mut, as well as grey Loxa bark, *C. corymbosa* made upon the spot, he has arrived at the conclusion that the amount of organic bases in the bark is subject to great variations, according to the place where the trees grow, and that this is probably more the result of differences of climate than of soil. The bark of *C. lancifolia*, which, on the average, yields 2.5 per cent. sulphate of quinine, and from 1 to 1.5 per cent. sulphate of cinchonine, often yields neither alkaloid, and sometimes yields 4.5 per cent. The bark of young branches of *C. lancifolia* was found not to yield any alkaloid, although the bark of the stem yielded 1.25 per cent. sulphate of quinine and 0.25 per cent. sulphate of cinchonine.

Hr. Karsten considers that the quinine produced in plants is again absorbed in the process of vegetation, when the supply of nutriment to the plant is cut off or diminished. Thus the bark of a tree which yielded 3.5 per cent. sulphate of quinine when fresh felled, yielded only 3 per cent. after it had been kept six months, during which time the bark of the tree remained upon it perfectly fresh.

The conditions that are considered by H. Karsten as most favorable to the production of a large amount of organic bases in cinchona bark, are constant uniformity of climate, with alternating cloudy, sunny, and rainy weather, while those species that grow in variable climates, with intermittent periods of vegetation, furnish bark that contains a smaller amount of alkaloids. —*Ibid.*

RESEARCHES ON THE ALKALOIDS OF NUX VOMICA,

By M. Schutzenberger.

M. Desnoix discovered some years ago in nux vomica a new base, igasuria, which differs from brucia by its greater solubility in water. But he published no analysis to establish its composition and its equivalent. I have in my possession several specimens of igasuria which were sold to me as brucia. I wished to profit by this opportunity to supply this deficiency, but after three estimations I perceived from the difference in the results that my product was not homogeneous.

Indeed, in treating my specimens with warm water, I have been enabled to separate nine new alkaloids, differing in their composition, and the separation of which may be effected by turning to account their difference of solubility in warm water and the time which they require for crystallizing during the cooling of the liquor. It is probable that by continuing my researches, I should have obtained a still greater number of distinct bodies. In order to establish to a certainty the existence of each of these bases, they were all analyzed twice, and the second analysis was made with a product recrystallized after the first.

The concordance of the two results proved to me the homogeneousness of the matter.

These bases were all colorless, and of a very bitter and persistent taste. Their action on the animal economy is almost as energetic as that of strychnia. They are all soluble in boiling water, but in very different degrees. They crystallize in transparent needles or in pearly tufts, which are sometimes very bulky. Nitric acid colors them red, like brucia. They all contain water of crystallization (6 or 8 equivalents,) eliminable at 100° C. (212° F.) None fuse in their own water, but some are softened. Two of them may affect the resinous state; this state is not stable.

The following is the table of these bases, which I shall call igasurias, *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h* and *i*.

Strychnia . . . . . $C^{42}H^{22}N^2O^4$.

Brucia . . . . . $C^{46}H^{26}N^2O^4+8Aq$.

a. $C^{44}H^{26}N^2O^{8}+6Aq$ very sparingly soluble.

b. $C^{36}H^{24}N^2O^{11}+5Aq$ sparingly soluble.

c. $C^{36}H^{24}N^2O^{8}+6Aq$ very soluble.

d. $C^{34}H^{32}N^2O^{16}+6Aq$ very soluble.

e. $C^{36}H^{26}N^2O^{8}+6Aq$

f. $C^{42}H^{20}N^2O^{8}+6Aq$ very soluble.

g. $C^{42}H^{36}N^2O^{12}+6Aq$ very sparingly soluble.

h. $C^{42}H^{26}N^2C^{12}+6Aq$ very soluble.

i. $C^{40}H^{26}N^2O^{14}+6Aq$ very soluble.

These bases resemble brucia in their characters, with the exception of their greater solubility in water and alcohol.

They may be regarded as products of the successive transformation of the latter under the oxidizing influence of the vital forces.—*London Chemist, Aug.* 1858, *from Comptes Rendus.*

CHARCOAL PAPER FOR FILTERING AND FOR THE PRESERVATION OF FOOD.

Messrs. Pichot and Malapert have succeeded in preparing paper containing a greater or less proportion of powdered animal charcoal, previously purified by acid. The charcoal is either mixed with the whole pulp, or, in making the paper, is inserted between the layers of pulp, so as to form an intermediate layer in the paper.

As the mixture of charcoal with the pulp lessens the strength of the paper, this objection must be removed by inserting a piece of gauze in each sheet of paper, or only in the centre of each sheet when they are required to be used as filters, so as to strengthen that part which forms the point of the filter.

The pulp for this paper may be made of hemp, linen or cotton rags, and, for especial purposes, woollen or silk rags may be used. All the materials are purified as much as possible without the aid of soap or alkaline substances, and with water as free as possible from earthy salts. The paper is made of different thicknesses, and may be used for wrapping fish, game and flesh that is to be sent to a distance.—*London Pharm. Journal, Aug.*, 1858.

ON THE APPLICATION OF STARCH SUGAR AS A REDUCING AGENT FOR CHLORIDE OF SILVER.

By Prof. Rudolph Boettger, of Frankfort.

Translated by Charles Caspari.

According to my observations, there does not exist a plainer, cleaner, and more effective agent for the reduction of chloride of silver, as well as for all those silver salts soluble or nonsoluble in water, than starch sugar under the subagency of carbonate of soda, caustic soda, and caustic potash.

Take a sufficient quantity (about two parts) of carbonate of soda, dissolve it in a little water, and mix in a porcelain dish with one part of freshly precipitated and perfectly edulcorated chloride of silver; then add a quantity of starch sugar, equal in weight to that of the chloride of silver; heat to the boiling point, and in a few minutes you will have the satisfaction to observe the process of reduction, even with large quantities of chloride of silver. After this process, the reduced silver will appear as a very fine dark gray powder, which, on account of its heaviness, can easily be purified by merely pouring distilled water on it and then stirring well. When ignited in a dry state, it will appear as a loosely coherent, delicate dim white spongy mass of the most perfect purity. Even when large quantities of chloride of silver are to be reduced, this method—on account

of its cheapness, elegance, and safeness—will prove to be preferable to all other processes hitherto in use. The same process might be resorted to in reducing chloride of platina and the salts of copper.—*Journ. and Trans. Maryland College Pharm. Sept.* 1758.

ON COLLODION.

By A. P. Sharp.

As this article has become quite an important one, not only to the pharmaceutist and surgeon, but in the beautiful art of Photography—which is now receiving the attention of many scientific men of both continents, to further develope the mysterious power of that imponderable agent, light—much has been written and many formulæ given for its preparation: but after a careful trial of a great portion of those I have seen, I have fallen back upon the one I have successfully used for several years, and now propose to the members of the College, at the same time naming its advantage over most of the other plans recommended.

It will be remembered, in the acid process a very strong nitric acid from 1.420 to 1.500 is one of the requisites necessary to obtain a good article of cotton soluble in ether. The objection I have to this mode, is the great difficulty of obtaining the acid of the proper sp. gr., as the commercial article seldom exceeds 1.400. Again, the process of the Pharmacopœia, where nitrate of potassa is the agent for obtaining the three atoms of nitric acid, I must say I have never succeeded satisfactorily in obtaining a soluble cotton, there always being a considerable sediment upon standing a few hours; and further, the quantity of sulphate of potassa and fumes of nitrous acid offer a serious objection to my mind; hence I have endeavored to overcome these difficulties, which, in a measure, I think I have by the following process:—

Take of Nitric Acid, 1.40,	- - - -	8 fluid ounces,
Sulphuric Acid (commercial),	-	16 " "
Nitrate Potassa,	- - - -	4 ounces,
Finely Carded Cotton,	- -	1 "

Dissolve the nitrate of potassa in the nitric acid, and then add the sulphuric acid; mix well together, and, while warm, immerse the cotton three minutes; transfer to a basin of water, and wash well until all traces of acid disappear; dry in the open air, and dissolve in thirty times its weight of a mixture of twenty-five parts of ether and five of alcohol of 95 per cent.

The advantages, it will be observed, are simply these: the acid being 1.40 can always be obtained, (being about the sp. gr. of chemically pure nitric acid); the easy immersion of the cotton; having avoided the excessive quantity of potassa and an entire absence of the noxious red fumes of nitrous acid, which, by the process of the Pharmacopœia, have often ruined my cotton.—*Ibid.*

ON THE MYRONATE OF POTASSA IN BLACK MUSTARD-SEED.

By Dr. S. von Thielau.

The author being desirous of studying the properties of myrosine and myronic acid, followed Bussy's directions for obtaining these substances, as published by him, in the Journal de Pharmacie, 1840, xxvi., 39; his results, however, are so much at variance with those of Bussy, that most of the statements of the latter are contradicted. Yet the following were found correct:

1. The aqueous extract of the alcoholic extract of black mustard generates with white mustard sulphocyanuret of allyl, oil of mustard:—the result is the same, whether the white mustard in substance, its aqueous infusion, or the impure myrosine is used.

2. Neither yeast, synaptase, nor any other ferment, (myrosine excepted,) is able to produce the oil of mustard with the aqueous extract of the black seed.

3. The extract is decomposed with the evolution of sulphuretted hydrogen, if it is kept at a temperature above 100° C., (212° F.,) after some time no oil is generated on the addition of white mustard.

The author experimented with 25 lbs. of black mustard-seed which was ground, the fixed oil expressed, and then exhausted with 86 per cent. alcohol, at first at ordinary temperature, afterwards at 68° C., (154° F.;) the alcohol was regained by careful distillation, and one pound of syrup was obtained, which was so stiff as not to move

even on inverting the vessel; it had to be heated to 70° C. (153° F.) before it could be poured out.

The residue of the mustard was extracted with water at 80° C. (176° F.) the water distilled off, but no crystals of myronate of potassa were obtained, though Bussy alleges the presence of considerable quantities of this salt in the above infusion; with white mustard *not a trace* of essential oil was produced.

The alcoholic extract is insoluble in ether, absolute alcohol, and a mixture of both, but dissolves in warm water; the solution was intensely bitter, and easily generated the ethereal oil with white mustard, but, contrary to Bussy, it would not crystallize.

On the addition of alcohol to the concentrated aqueous solution, a considerable white crystalline precipitate occurred, which proved to be pure sulphate of potassa.

The solution was treated with yeast to destroy the sugar, with acetate of lead to remove sulphuric and gallic acids (the latter a product of decomposition of tannic acid during the manipulations), with animal charcoal, albumen, and alumina, to remove coloring matter, but the latter experiments were of no avail; all these treatments had not destroyed the fermentable body, but it would not crystallize. Chlorine and perchloride of tin did not decolorize, but destroyed the extract: wolframate (tungstate) of soda and muriatic acid did both. Tannic acid afterwards precipitated a resinous and a glutinous body, but the syrup retained its color and would not crystallize.

Caustic alkalies and their carbonates in large quantities, the salts of the heavy metallic oxides, hydrochloric, sulphuric, and nitric acids, as well as phosphoro-molybdic, tartaric, oxalic, acetic and formic acids destroy the property of forming oil of mustard, which re-appears on the neutralization of the acids with potassa.

The ashes contained much sulphate of potassa and phosphate of lime, sulphate of magnesia, some iron, silicic acid, traces of muriatic acid, but no carbonic acid.

The author says, Bussy has the merit of having discovered the essential oil of mustard to be the production of fermentation, but declares the existence of myronic acid to be fabulous.—(*Wittstein's Vierteljahresschrift*, vii. 161–170.) J. M. M.

ON BUIGNET'S METHOD FOR THE QUANTITATIVE DETERMINATION OF HYDROCYANIC ACID.

By A. Ferrein.

The Bulletin Général de Thérapie, 1858, Janv. 15, publishes this volumetric method for the determination of hydrocyanic acid, which is founded on the peculiarity of two copper compounds, the double-salt of cyanide of copper and ammonium being colorless, while the sulphate of copper and ammonia is of a deep blue color.

Accordingly, if a liquid containing hydrocyanic acid is oversaturated with ammonia, and a solution of sulphate of copper of known strength added until the blue color becomes permanent, the sulphate of copper has been just sufficient for the reaction with the cyanide of ammonium, and thus indicates twice an equivalent quantity of hydrocyanic acid.

M. Ferrein dissolved 2.308 grm. sulphate of copper, (1 equiv. CuO,SO_3+5HO,) in 100 CC. water, which just suffice for the decomposition of 1.000 grm. or a double equivalent of hydrocyanic acid, according to the following calculation:

$$2\times 27 : 124.6 = 1000 : 2308.$$

On examining a medicinal hydrocyanic acid, 5.781 grm. of it required 4.8 CC of the copper solution, corresponding with 0.048 grm. HCy, or 0.830 per cent, while by precipitating with nitrate of silver, the above quantity of medicinal acid furnished 0.046 grm., or 0.795 per cent. HCy.

The results being so nearly alike, the author recommends the above volumetric method.—*Wittstein's Vierteljahresschrift*, vii. 388–89. J. M. M.

THE NATIVE COUNTRY OF THORNAPPLE.

By Prof. v. Schlechtendal.

The author in Botan. Zeitung, 1856, 849, states, that Datura strammonium is a native of southern Russia, where it is very common in the countries bordering on the Black Sea, and in southern Siberia. Older botanical works do not mention the thornapple growing wild in Europe, but several authors refer to it as a garden-plant, and Clusius states positively that its seeds were first brought to Innsbruck and Vienna in 1583, and in the following year the

plant was grown in many gardens. By authors of that time it was called Tatula Turcarum.

But Datura tatula L., is a native of America, particularly of the countries of the temperate zone, while the home of Datura metel, L., is in the East Indies, where, according to Roxburgh, it is very common. Schlechtendal thinks this fact has been known even to the ancient Greeks.—*Wittst. Viertelj.* vii., 137. J. M. M.

ANALYSIS OF THE LEAVES OF POISON-OAK (RHUS TOXICODENDRON.)

By Dr. Joseph Khittel.

The author obtained the material for his investigation from the botanic garden in Munich. 37½ oz. of the fresh mature leaves, after careful drying in the shade, lost 28 oz.; the remaining 9½ oz. were reduced to a coarse powder.

The fresh juice has an insipid, afterwards bitterish taste, and an acid reaction; by boiling, much albumen is coagulated, and the liquid has now a sweetish taste, similar to asparagin, and a greyish brown color, which ammonia changes to a golden yellow, without rendering it turbid.

I. 1000 grs. of the powder were digested and exhausted by pure sulphuric ether; it lost a little over 100 grs., and was entirely deprived of its green color. The greater part of the ether was regained by distillation, the remaining liquid evaporated with water until all the ether had been driven off, when it was filtered and well washed. The clear filtrate, on standing for two days, separated a greenish powder; it was evaporated, re-dissolved in water, filtered, and phosphoric and sulphuric acids, together with the coloring matter, precipitated by a few drops of acetate of lead. The filtrate was precipitated by a solution of sugar of lead; the yellow precipitate suspended in water and decomposed by sulphuretted hydrogen. The filtered liquid was of a faint, bitter taste, and reacted slightly acid. Sesquichloride of iron caused a dark green coloration and precipitate; tartar emetic produced a deep yellow color, but no precipitate; glue rendered it slightly opaque. It was a tannic acid, but contained neither citric nor malic acid.

The yellow lead precipitate was analyzed, and found to be a tannate of lead of the formula $2PbO + C_{18} H_{14} O_{13}$.

The filtrate from the last precipitate, on nearly neutralizing it with ammonia, threw down a body of a paler yellow color than the previous; it contained 68.85 per cent. of oxide of lead; but the elementary analysis could not be made, on account of the small quantity of the material.

The last filtrate was entirely colorless; it was not precipitated by subacetate of lead, but rendered slightly turbid by ammonia in excess; after being freed from lead, it was evaporated in a water-bath, when it acquired a deep brown color; no sugar could be detected, the organic matter must come under the head of extractive matter.

The greenish powder obtained as above, from the first aqueous solution, melted on the application of heat to a yellow liquid, was then decomposed with the evolution of an aromatic odor and acid fumes, and burned without residue. It was easily soluble in ether and alcohol, only slightly soluble in cold water, the solutions were of neutral reaction and precipitated white by acetate of lead. The solution in dilute sulphuric acid was decomposed on standing, but no sugar could be detected. The powder contained no nitrogen.

The residue of the aqueous treatment of the ethereal extract proved to be a mixture of wax and fat colored by chlorophyll.

II. The residue of the treatment with ether was exhausted by alcohol, and the tincture treated with water as above, about 150 grs. was thus taken up. Water left a waxy matter behind with traces of chlorophyll. The aqueous solution contained the above tannic acid, producing with acetate of lead the same yellow precipitate $2PbO, C_{18} H_{14} O_{13}$. In the filtrate, Trommer's test indicated the presence of sugar.

III. Cold water was now used for exhausting the residue of the leaves. After the coagulation of the albumen, the yellowish liquid filtered clear; was of an insipid, sweetish taste, of an acid reaction on litmus paper, acquired a golden yellow color by ammonia, a slight greenish coloration by sesquichloride of iron, and a dirty yellow turbidity by acetate of lead, which was partly dissolved by acetic acid.

In the watery decoction of the residuary substance, the faint

blue coloration produced by tincture of iodine proved the presence of a little starch.

IV. The remaining substance was now subjected to the treatment at a moderate temperature with very dilute hydrochloric acid; after exhaustion the leaves had now lost nearly one-half their original weight. The solution assumed a darker color on being oversaturated with ammonia, it partly gelatinized (pectin) and separated a white powder, which proved to be oxalate of lime.

V. Not having detected by the analysis any substance to which the poisonous qualities of poison-oak might be attributed, the author made a series of experiments, which showed a volatile alkaloid to be the poisonous constituent; it was obtained by the following process:

3 oz. of the powdered leaves were infused with hot distilled water, after three days strained, expressed, the liquid evaporated to 3 oz., and with the addition of caustic potassa carefully distilled to one-half. The clear colorless distillate had an alkaline reaction and an odor resembling henbane or hemlock. It was saturated with sulphuric acid, evaporated and treated with a mixture of equal quantities of alcohol and ether, which left sulphate of ammonia behind; the solution was evaporated spontaneously, distilled with caustic potassa, the alkaline distillate neutralized with hydrochloric acid, and a precipitate could now be obtained with chloride of platinum. Want of material prevented further experiments.

By the foregoing analysis the leaves of Rhus toxicodendron were proved to contain chlorophyll, wax, fat, resin, sugar, albumen, gum, pectin, starch, tannin producing a green color with iron-salts, oxalic acid, a peculiar indifferent body, and a poisonous alkaloid.*

An analysis of the ashes was made, which proved the presence of potassa, soda, lime, magnesia, alumina, oxide of iron, chlorine, sulphuric, phosphoric, silicic and carbonic acids.—(*Wittstein's Vierteljahresschrift*, vii., 348–359.) J. M. M.

* [Note. It would have been more satisfactory if the author had given some physiological evidence of the poisonous nature of the alkaloid substance obtained. It is quite interesting to hear that the hitherto intangible venom of this plant has been at last detected.—Ed. Am. Jour. Pharm.]

THE INFLUENCE OF LIQUOR POTASSÆ AND OTHER FIXED CAUSTIC ALKALIES UPON THE THERAPEUTIC PROPERTIES OF HENBANE, BELLADONNA, AND STRAMONIUM.

By Dr. A. B. Garrod.

The object of this communication was—

1. To prove that the active principles of the plants under consideration are absolutely destroyed by the influence of the caustic alkalies.

2. To show the ratio which must exist between the different preparations of the plants and the alkalies for the neutralization to be perfect.

3. To ascertain the time demanded for the decomposition to be complete.

4. To illustrate clinically the influence of the alkali in preventing the occurrence of symptoms, and removing such when large medicinal doses of these solanaceous drugs are administered.

Dr. Garrod, before proceeding to discuss these various heads, brought under notice a few points relating to the nature of liquor potassæ, and the properties of some of the officinal preparations of henbane, &c., showing that the former, although strongly caustic, still possessed but little neutralizing power, containing so small an amount of potash—not more than 6.7 per cent.; and that most of the preparations of henbane, belladonna, and stramonium, as the tinctures and extracts, were strongly acid in reaction, and hence, before the alkali could act upon the active principles contained in them, it must first neutralize this acidity, next separate the alkaloids from the acids with which they naturally are combined in the plants; that therefore, much more was required (measured by the physiological or therapeutic strength of the drugs) to neutralize the galenical preparations than their alkaloids, or the active principles themselves. To prove that the active principles were absolutely destroyed by the alkali, he (Dr. Garrod) performed several experiments in the following manner:—A solution of atropine was made by dissolving it in water with the aid of a little spirit, dividing the solution into two parts, adding to one some carbonate of potash, to the other a sufficiency of liquor potassæ, and permitting both to remain for some hours. Chloroform was afterwards well shaken with both solutions, and allowed to subside, the supernatant fluid being poured off, and

the chloroform washed with a little distilled water. Each portion was evaporated spontaneously in glass dishes. From the solution, to which carbonate of potash had been added, a gummy matter was obtained (soon, however, becoming crystalline,) a solution of which dilated the pupil intensely; and when acidulated with hydrochloric acid, and chloride of gold dropped in, gave rise to the beautiful plumose crystals of the double chloride of gold and atropine. From the second solution, that to which liquor potassæ had been added, a strong-smelling substance was left, on the evaporation of the chloroform, having no power of dilating the pupil, and giving rise to no crystallization with the gold salt. These experiments demonstrated beyond doubt the absolute destructive agency of the caustic alkali upon the active principles. It was also shown that most other alkaloids, as morphia, quinine, cinchonine, &c., were not so destroyed. To show the ratio which must exist between the different preparations of the plants and the fixed alkali, in order that neutralization may be perfect, Dr. Garrod gave the results of more than sixty experiments and observations in a tabular form, from which it appeared that when atropine is acted upon by liquor potassæ, the destructive influence of the latter is so great, that less than twenty minims are required to neutralize one grain of the former, and that probably pure potash will destroy its own weight of atropine. That when belladonna preparations are employed, the power of the potash becomes weakened, from the causes above alluded to—namely, the natural acidity of the drugs, and the necessity of first displacing the alkaloid from the acid with which it is combined; still, however, it was shown by the table that fifteen minims of liquor potassæ will destroy a fluid drachm of the tincture, and that twenty-five minims are sufficient to produce the same change in five grains of the extract; at once demonstrating that quantities very greatly beyond the medicinal doses of these drugs—indeed, even poisonous amounts—are rendered quite inert by very moderate addition of the alkaline solution. The same was found to hold good in the case of daturine and the preparations of stramonium. Ten minims of liquor potassæ will neutralize a drachm of tincture of henbane, and thirty minims destroy nine grains of extract of henbane, although, when ten grains are employed, dilatation will often ensue from a small portion of the extract, less than one grain being left free; and it should be ob-

served that a very minute proportion of these preparations is amply sufficient to induce the effect. Of course these extracts and tinctures are liable to variation in strength, acidity, &c., circumstances which must necessarily produce an alteration in the requisite amounts of liquor potassæ required for complete neutralization. With even the best extract, however, procured from one of the first druggists in town, it was found that nine grains were destroyed by the above-named quantity of potash. Nine grains of good extract of henbane and three fluid drachms of good tincture of the same may be considered as doses of the drugs which few practitioners would prescribe; yet these are destroyed by thirty minims of liquor potassæ, proving beyond all doubt, that in the proportions prescribed in actual practice, a total neutralization of effect ensues. To ascertain the required time, Dr. Garrod made experiments with solutions of atropine, and commenced the observation shortly after the addition of the potash. In an hour and a half the effect on the pupil was much diminished, and in two hours and a half ceased altogether. The influence of the alkali in preventing the occurrence of symptoms, and removing the same when large medicinal doses of these solanaceous drugs are administered, was clinically illustrated by the narration of several cases, in which, after very decided effects had been induced by henbane or belladonna preparations, the addition of a very small quantity of liquor potassæ to the draught (the patient continuing the other drugs) quickly caused the cessation of the symptoms; and again, other instances where the withdrawal of the liquor potassæ from a combination was followed by the occurrence of powerful symptoms. From these observations and experiments, Dr. Garrod concluded that the liquor potassæ possessed the peculiar power of destroying the active principles of henbane, belladonna, and stramonium, even when in very dilute solutions, and that the combinations frequently prescribed are utterly incompatible both in a chemical and therapeutical point of view.

In answer to Dr. O'Connor,

Dr. Garrod stated that he had not tried the effect of heat in his experiments, but he had no doubt that an increase of temperature would increase the rapidity of decomposition.

Dr. O'Connor said he had observed for a long time past the facts

stated by Dr. Garrod; and that it had been distinctly stated by Geigar, on the authority of Liebig, that atropa, stramonium, and hyoscyamia were decomposed by fixed alkalies, and that on the application of heat the decomposition was more rapidly effected. From having read the statement of Leibig some twelve or thirteen years ago, he had never since ordered fixed alkalies in combination with either of those preparations.

Dr. Garrod said he had enumerated in his paper the works in which the statement had been made, that alkalies had the power of destroying the active principles of henbane. He claimed no originality in the matter, but simply the merit of having brought the subject prominently forward, at a time when, notwithstanding the statements of several authors, medical men were constantly in the habit of prescribing medicines which had the power of completely neutralizing each other.—*London Pharm. Jour., Sept.* 1858, *from Medical Times and Gazette.*

NOTES ON FROTH.

By Dr. Gladstone, F. R. S.

All liquids, when shaken up with air, form bubbles; but some allow these bubbles to break and disappear the moment they are at rest, while others give rise to a more or less permanent froth. This difference among liquids appears to be of a specific character, and cannot as yet be shown to be dependent on any other quality.

As a general rule, aqueous solutions of organic bodies are more disposed to froth. Beer is a familiar instance. In this case, the formation of the froth is originally due in a great measure to the rising of carbonic acid gas through the liquid; but its permanence is totally independent of that, or indeed of any dissolved gas. This was proved by subjecting some beer to exhaustion by an air-pump, till every trace of the carbonic acid and air it contained was removed, withdrawing it from the vacuum, and shaking it immediately, when a fine froth was produced which was as persistent, or nearly so, as if the beer had continued brisk.

Solutions of the acetates are peculiarly disposed to produce a permanent froth. To such an extent is this the case, that, in

making use of mixtures of salts, I have sometimes distinguished those containing an acetate by this property. The acetate of iron is pre-eminent; but the acetates of copper, lead, and other metals share this property to a considerable extent. Yet acetic acid itself shows no disposition to froth; and the bubbles made when alcohol or ether are shaken instantly disappear. Acetate of iron gives off much dissolved air when it is exhausted by the pump, but it froths equally afterwards. The citrate of iron is analogous to the acetate.

This property of frothing is quite independent of specific gravity. A heavy solution of sulph-indigotic acid froths, but a solution of chloride of ammonium of high density produces no persistent bubbles when shaken; while, on the other hand, a weak solution of soap, that differs little from distilled water, will produce, as every one knows, a very permanent froth.

The froth on the surface of a colored liquid is always of a lighter tint than the liquid itself. This is what might be anticipated, when it is remembered that, in looking at froth, we see the light which has traversed only very thin films of the liquid, and hence has been subjected to but little absorption. Sometimes, however, the color of froth is totally different from that of the liquid on which it floats; cochineal, for instance, gives a deep-red aqueous solution, which froths considerably when agitated, but the bubbles appear of a pale bluish-purple. This is due to the dichromatic character of the liquids in question; they admit many rays of the spectrum for a certain distance, which are afterwards absorbed, and that in such a way that the sum of the rays transmitted by the thin stratum conveys to the observer a different impression of color to that which is conveyed by those rays which can penetrate a thicker stratum. Thus the thin film of cochineal solution which constitutes a bubble, transmits the red ray, a yellowish-green ray, a bluish-green ray, and nearly the whole of the blue and violet of the spectrum; the resulting color is accordingly bluish-purple, mixed with much white light; a thicker stratum of the same cuts off both the green rays, and a still thicker one transmits only the red.

Of a similar nature is an appearance observed in port wine. The new wine, when shaken, forms a bubble which is faintly red, while old port forms one that is colorless. This, indeed, is some-

times taken advantage of as an indication of the age of the port. The difference arises partly from a gradual change that takes place in the coloring matter of the wine, partly also on the diminished thickness of the film that constitutes the bubble of the older and "thinner" wine. If old port be placed in a hollow glass wedge, and thus interposed between the eye and a slit in the window-shutter, in such a way that the line of light is seen traversing the different thicknesses of the liquid, that line will appear white where the stratum is thinnest, and will become red very suddenly as the stratum increases; almost as intensely red, in fact, as when the thickness is considerable; and if this line of light be analysed by a prism, it will be seen that every ray of the spectrum traverses the thin stratum, but that suddenly they are cut off, all at very nearly the same distance, with the exception of the red ray and a portion of the orange, which are transmitted through almost any amount of liquid.

Some bubbles, as is well known, exhibit that beautiful phenomenon designated "the colors of thin plates," or "Newton's rings." This is most strikingly displayed by the froth on the surface of the black liquid produced by adding a few drops of sulphuric acid to oil of turpentine; the play of colors is beautifully relieved against the black background.—*London Pharm. Journ., from London, Edinburgh, and Dublin Philosophical Magazine.*

A NEW PRECIPITANT FOR THE ALKALOIDS.

By M. Sonnenschein.

Phospho-molybdic acid forms with ammonia, in acid solutions, a remarkably insoluble compound, and it comports itself in a singular manner with those compounds which are analogous to ammonia—the nitrogenized organic bases—consequently forming an excellent reagent for their detection. It may be prepared in the following manner:—

Molybdate of ammonia is precipitated by phosphate of soda; the yellow precipitate, having been washed, is diffused through water, and heated with sufficient carbonate of soda to dissolve it. The solution is then evaporated to dryness, and calcined to drive off the ammonia. In case any of the molybdic acid should be

reduced by this operation, the residue must be moistened with nitric acid and again calcined. The dry mass is then dissolved in cold water, the solution strongly acidulated with nitric acid, and water added until ten parts of the solution contain one of the salt. The liquid, which is of a golden yellow color, must be preserved from ammoniacal fumes.

It precipitates the solutions of all the alkaloids, with the exception of urea, when a mere trace only is present. The precipitates are yellow, generally flocculent, insoluble in water, alcohol, ether, and the dilute mineral acids, with the exception of phosphoric acid. Nitric, acetic, and oxalic acids, concentrated and boiling, dissolve them. These compounds are decomposed by the alkalies, certain metallic oxides, and the alkaline salts, which separate the alkaloid.

To give an idea of the sensibility of this new reagent, it may be stated that the 0.000071 gramme of strychnia gives an appreciable precipitate with one cubic centimetre of the solution of phospho-molybdic acid.—*London Pharm. Journ. Sept.* 1858.

OBSERVATIONS ON CERTAIN DIFFERENCES OF ACTION, BETWEEN POTASSA AND SODA, WITH REGARD TO VARIOUS ORGANIC MATTERS, IN THE PRODUCTION OF OXALATES AND CYANIDES.

By M. L. Possoz.

In endeavoring to apply economically, in an industrial point of view, the scientific data, published by Gay Lussac (*Annales de Chimie et de Physique*, 1829), on the production of oxalic acid, by the action of the hydrates of potassa and soda on various organic matters, I observed that in this reaction soda was far from acting exactly like potassa; and having frequently observed analogous facts in other circumstances, I thought that it would be useful to call the attention of chemists to this point, for we are too often led to regard the action of these two bases as identical. Thus, as regards the oxalates, not only does hydrate of soda produce, in all cases, much less oxalic acid for a given weight of organic matter, but also with certain substances it produces none at all, and with others gives only traces; however, when it is united with hydrate

of potassa in certain proportions, it is capable, on the contrary, of aiding in an abundant production of this acid.

I will begin by indicating the quantities of oxalic acid which I have obtained by treating various organic matters with hydrate of potassa, remarking that several belonging to the ligneous genus, might be considered as having among themselves a great analogy of elementary composition, producing, nevertheless, very various quantities of oxalic acid.

After having tried a great number of different estimations, I stopped at the following, as being equally well adapted to the comparative treatment of several different matters.

The following are the principal results:—

Hydrate of Potassa.	Dried at 100° C. (212° F.)	Product=Crystallized oxalic acid.
300+100 Fecula dried.	Mean of 10 operations	=125
300+100 Sawdust of various woods.	20 ,,	= 70
300+100 Straw of cereals	10 ,,	=100
300+100 Hay from various sources	20 ,,	=140
300+100 Trefoil	4 ,,	=110
300+100 Lucerne	4 ,,	=110
300+100 Tansy	4 ,,	=130
300+100 Mugwort	2 ,,	=115
300+100 Wild chicory	2 ,,	=120
300+100 Borage	2 ,,	=112
300+100 Nettles	2 ,,	=100
300+100 Tobacco stalks	4 ,,	=150
300+100 Bran of cereals	4 ,,	=150
300+100 Pure woollen rags	4 ,,	= 10
300+100 Pure silk rags	2 ,,	= 12
300+100 Leather	2 ,,	= 6
300+100 Horn	2 ,,	= 20

These experiments were conducted in the following manner:—

1. For fecula the caustic liq. was first concentrated until its boiling point reached 225° C. (437° F.) then cooled to 180° C. (356° F.); then the fecula was added by small portions at a time, the temperature being maintained between 200° and 225° C. (392°

and 437° F.) for four hours; the mass having become white, it is dissolved, and a portion of it is tested with a salt of lime.

2. For other matters, it is better to introduce them into the liq. concentrated only to about 48° Beaumé (or 1,500 sp. gr.) and to evaporate the whole together; the ligneous matter is dissolved, and when the mass has become thick, and is still brown, it contains much ulmic acid, no oxalic, acetic, formic, or carbonic acids; the hot mass is still maintained between 200° and 225° C. (392° and 437° F.); it becomes yellow, then whitish, and after being heated for four or five hours, it no longer contains ulmic acid, but all the other acids above mentioned.

We may, indeed, complete the operation more rapidly, but then we often destroy a portion of the oxalic acid.

When we substitute soda for potassa, the final reaction is not the same; when the organic matter is dissolved, we likewise find much ulonic acid; but by continuing to heat in order to convert the latter into oxalic acid, whatever care we may take, the oxalic, acetic, and formic acids appear to be destroyed as they are formed, for however long the reaction may last, we can always ascertain their presence; but whenever it is stopped, and with whatever proportion of soda we operate, we never obtain anything but very small quantities of oxalic acid, or, on the average, one-tenth as much as with potassa, often only traces, and with certain matters, such as wool, silk, and leather, not even traces.

In general, the presence of the oxalates appears very ephemeral in these reactions with soda, especially when we operate on several kilogrammes of organic matter at once. The more considerable the mass, the more difficult the operation is to conduct; with potassa this inconvenience is not at all experienced.

It seems that this destructive action of hydrate of soda may be attributed to its being less fusible than hydrate of potassa, and too energetic. Indeed, if we make mixtures of the two hydrates in such proportions that the mass shall retain nearly the same fusibility as hydrate of potassa *alone*, then the production of oxalic acid will not only not be diminished, but will even be increased; certain proportions of soda increase, in this case, the useful effect of potassa, admit of the employment of larger proportions of organic matter, and of thus obtaining a larger proportion of oxalic acid with the same quantities of caustic alkalies.

In a series of operations made with the view of knowing what would be the proportions of potassa and soda capable of producing most oxalic acid, I observed:—

1. That a mixture of 1 part of hydrate of soda with 3 parts of hydrate of potassa is capable of decomposing one-tenth more fecula than if pure potassa were employed, and that the quantity of oxalic acid produced is increased in proportion to the fecula employed.

2. That a mixture of 1 part of hydrate of soda with 2 parts of hydrate of potassa is capable of decomposing one-eighth more fecula than if potassa alone were employed, and that the quantity of oxalic acid produced is increased in proportion to the fecula employed.

3. That a mixture of 1 part of hydrate of soda with 1 part of hydrate of potassa acts nearly like pure potassa.

4. That a mixture of 2 parts of hydrate of soda with 1 part of hydrate of potassa produces one-tenth less than pure potassa.

5. That a mixture of 3 parts of hydrate of soda and 1 part of hydrate of potassa produces one-fifth less than pure potassa.

6. That below this proportion of soda (No. 5) the production of oxalic acid becomes very small and impossible as a manufacture.

Pure soda cannot then be employed as a substitute for potassa in the production of oxalic acid, as former works on this subject might lead us to suppose; but it may be usefully employed mixed with potassa.

In the production of the cyanides by means of animal matters, if we endeavor to replace potassa by soda, we find that pure soda, whether caustic or carbonated, produces much less cyanide than potassa, and that additions of soda to the potassa do not by any means increase the production of the cyanides; on the contrary, in proportion as the quantity of soda is augmented, the production of cyanide is diminished. Thus, whilst in the ordinary course of manufacture, I obtained with carbonate and sulphuret of potassa 25 parts of ferrocyanide with 100 parts of horn, soda in the same conditions furnished only 5 parts.

This smaller production of the cyanides with soda seems explicable from the fact that soda is less readily reduced than potassa to the metallic state, the condition in which the combination between the nitrogen and the carbon can alone take place.

Indeed, in the production of the cyanides by free gaseous nitrogen

passing through charcoal impregnated with carbonate of potassa or soda, it is remarked that with the latter it is necessary to heat much more powerfully than with potassa to obtain an equal quantity of cyanide.

But with animal matters, the latter are too quickly decomposed at a very high temperature, and the greater part of their nitrogen escapes before the reduction of the soda, for even by heating very powerfully (above the fusing point of cast iron), the production is not sensibly increased and never comes near to that of potassa.—*London Chemist, Sept.*, 1858, from *Comptes Rendus*, No. 5, Aug. 2, 1858.

ON PRECIPITATED OXIDE OF MERCURY.

By William Wallace, Ph.D., F.C.S., Glasgow.

Mercuric oxide, prepared by treating a solution of corrosive sublimate or mercuric nitrate with a caustic alkali, was formerly regarded as a hydrate, but Millon, Marchand and Pelouze have declared it to be anhydrous. Schaffner states, however, that the precipitated oxide contains 20 per cent. of water, and deduces from his analyses the formula HgO, 3HO.

Specimens of the oxide precipitated and dried at the temperature of the air, and at 212°, were carefully prepared. In no case did the precipitates lose more than about 1 per cent. on being heated to incipient decomposition. The oxide appears to be decomposed with somewhat greater facility on the first application of a high temperature, than after having been strongly heated. This is probably owing to the conversion of the yellow oxide into the red by the action of heat.

Solubility in water.

1. Recently precipitated mercuric oxide was left in contact with water for several days, the mixture having been repeatedly stirred up. 200 cubic centims. of the fluid gave ·001 of oxide, or 1 part in 200,000 of water.

2. The oxide was boiled with water for some time, and the solution allowed to cool. 250 cubic centims. of the filtered liquid gave ·002 of oxide, or 1 part in 125,000 of water.—*London Chem. Gazette, Sept.*, 1858.

ARTIFICIAL ROSE-WATER.

By Professor Wagner:

It is well known that the products of the spontaneous decomposition of salicylate of potash are distinguished by a peculiar rose-like odor. This salt is obtained by boiling oil of Winter-green (the essential oil of *Gaultheria procumbens*), which may now be obtained at a low price, with solution of potash. The mother liquor poured away from the paste of crystals which is immediately formed, possesses a penetrating odor of roses, and when distilled with water, furnishes artificial rose-water.—*Chem. Gazette, Sept.* 15, 1858, *from Wagner's Jahresber. über die Fortschritte der chemischen Technologie für* 1859, p. 260.

ON THE USE OF SOLUBLE GLASS.'

[Compiled for the Druggists' Circular.]

Soluble glass is prepared by fusing a mixture of 15 parts of quartz, 10 of potash, or 9 of soda, and 1 of charcoal; in its dry state it is clear, colorless, hard, and not easily fusible. Gradually added to boiling water in the form of fine powder, it is dissolved after some time in 5 or 6 times its weight of water to a syrupy liquid. The same solution has been obtained by dissolving quartz directly in a strong solution of caustic soda under a pressure of 7 or 8 atmospheres.

Common chalk previously soaked in water, and afterwards allowed to remain in the solution for a few days, has acquired such a hardness that it cannot be scratched with the finger nail, and may be readily polished. This increase of hardness penetrates into the interior of the piece in proportion with the time allowed for the reaction, and a mass is thus obtained quite unsusceptible to the influence of either water or carbonic acid. This quality of the soluble glass will secure it a vast application for the hardening and preservation of porous and decaying building stones, and walls erected with such material. The great painter, Kaulbach, has the merit to have called forth a new period in fresco painting by the use of the soluble glass for the fastening of his paintings upon the plaster walls. He paints with ordinary water colors, or mixes them with a weak solution

of the glass, and the wall, after the finishing of the painting, is saturated with the glass solution by means of a fine syringe.

Soluble glass may be used for the painting and preservation of metals, stone, wood, paper, and a number of fabrics. Wooden floors are thus not only made very hard and durable, but their absorption of oil, ink, &c., is effectually prevented, and they are preserved against all attacks of the wood-worm, &c. Wood, paper, &c., are rendered uninflammable, particularly if the glass solution has been mixed with chalk, in which case the glass coat is externally hardly altered, while underneath a kind of destructive distillation is going on; but if the coating has been of pure soluble glass, this is apt to become fused by the heat and run off, thus exposing the wood or paper partly to the fire. Articles made of iron, clay, and many other metals and earths, may be painted and glossed; they are first painted with the glass, and after this painting has been allowed to dry, a second coating, consisting of the paint with a weak solution, is applied, and afterwards coatings of a concentrated warm solution are laid on, until the articles have attained the desired gloss.

For druggists, it is important to know, that soluble glass, with zinc white or with *blanc fix*, (precipitated sulphate of baryta) is very available for labelling glass bottles, and that such labels are indestructible either by spirits, oils, or acids. Varnished labels cannot be covered with this glass, as it renders them liable to crack. But paper boxes soaked in a warm solution of soluble glass, and after a complete drying, painted with a suitable color ground in the solution, are admirably adapted for the preservation of herbs, roots, and most substances requiring to be kept excluded from the changes of the air.

A "glass paper" has also been proposed as a substitute for waxed paper, for the purpose of covering ointments, cerates and wrapping up plasters, &c.; it is more elegant and much cheaper than waxed paper. Professor Artus uses moderately heavy writing paper, and puts the solution of soluble glass of 1.12 or 1.15 spec. grav. on with a brush, renewing the application after the first one has become perfectly dry. A stronger solution produces a more glass-like covering, but such paper cannot be rolled without cracking.

For domestic use, soluble glass has been recommended as a substitute for soap, and woollen, silk, cotton, linen and leather fabrics, (kid gloves, &c.) are cleansed much easier and better than by soap; it is cheaper, and goes further than the latter. On washing with the glass, hard or soft water may be used, cold or luke-warm. Only very dirty and starched cotton or linen clothes must afterwards be rinsed in hot water. Soluble glass lessens the work and saves fuel, it preserves all colors, with probably the single exception of *bleu de France*, which is likewise destroyed by soap. For 100 lbs. of water, but 1 lb. of soluble glass is necessary in all cases, save for the washing of raw wool which may sometimes require as much as 4 lbs. It has been introduced into a number of the largest factories in Europe.

J. M. M.

ON ARNICA CERATE.

By N. Hynson Jennings.

Having observed the favorable results from the use of the Tincture of Arnica, and being desirous to prove its efficacy in some cases where the fluid preparation was ineligible, I concluded to prepare it in the form of a plaster or hard cerate.

I have found it to afford great relief in tenderness of the feet produced by intense cold or tight boots. Combined with Melilot Plaster in equal parts, it has been prescribed by one of our well known physicians with decided success. The following is the formula I propose:—

Take of Arnica Flowers,	- - - -	4 ounces,
Olive Oil,	- - - -	6 "
Beeswax,	- - - - -	10 "
Diluted Alcohol	-	a sufficient quantity,
Sulph. Ether,	- - - "	"

Having reduced the flowers to a tolerably fine powder, moisten with diluted alcohol and pack firmly in a glass funnel; exhaust, and, by means of a water bath, evaporate to about five fluid ounces, and mix with the oil and wax, previously heated together; then boil over a slow fire till all moisture is dissipated, and lastly strain. A little ether is required to dissolve the resin deposited on the sides of the porcelain dish.—*Journ. Trans. of the Maryland College of Pharmacy, Sept.*, 1858.

Varieties.

New Test for Manganese.—Bœttger has given us a new re-agent for manganese. He states that the minutest quantity may be detected by the chlorate of potash. In order to detect it, throw a small quantity of the material suspected to contain manganese into a test tube, which already contains the chlorate of potash in a state of fusion. After the combustion has entirely ceased and the tube is cold, a peach blossom residue will be left if there has existed the smallest quantity of manganese. By means of this re-action Bœttger has discovered manganese in boxwood, beech, cork, in the iodine of commerce, tea, leaves, and several articles of food.

The Diseases of Quinine-Makers.—M. A. Chevallier, at the last sitting of the Academy of Sciences of Paris, communicated a paper on the diseases to which workmen employed in the manufacture of sulphate of quinine are subject. It appears from his statement that one of the disorders is a cutaneous affection severe enough to force them to suspend work for a fortnight, a month, or sometimes altogether. M. Chevallier further quotes M. Zimmer, of Frankfort, to testify to a particular kind of fever-bark fever (das China Fieber,) which affects workmen engaged in pounding bark. This has not yet been observed in France. It is described as so painful that those who have once suffered throw up employment rather than risk a second attack. As for the cutaneous affection, it attacks not only workmen but those about the place, and affects alike the sober and the intemperate. No remedy has as yet been discovered.—*Lancet*, May 22, 1858.

Chlorate of Soda as a Substitute for Chlorate of Potash.—M. Gueneau de Mussy states (*Revue Médicale*) that, struck with the little solubility of chlorate of potash, he substituted the chlorate of soda for it, as the latter salt is much more soluble than the former. The taste of the chlorate of soda is, moreover, less disagreeable than that of the other salt, and can be given in a smaller quantity of vehicle. M. G. has given the chlorate of soda in several cases of diphtheria with success.

Vaccine Virus vs. *Wax.*—A physician of some note in Chicago called at one of the leading drug stores in the city for a scab of *vaccine virus*. The apothecary sold him the desired article encased, as usual, in a thick coating of white wax to guard it from the injurious effects of the air, and wrapped in tin-foil as a still further protection, the whole forming a lump the size of a walnut. In about ten days the M. D. re-entered the emporium of emetics and purges. "It isn't worth a straw!" says the doctor,

pettishly tossing upon the prescription-counter the virus which he had recently purchased. "But," urged the druggist, "there must be some mistake; it has been tried repeatedly, and with invariable success." "I have used it in a dozen of cases, and not one of them has 'taken;' there is your stuff, sir, call it what you please—*I* call it a *humbug* and *a swindle*, sir!" quoth the doctor, waxing wroth. The scab was examined. Part of the foil had been removed and some small encroachment made upon the wax, but the virus itself remained imbedded in its tenacious sheath entire. The truth flashed upon the pill-maker, and an unwonted smile radiated in wrinkles over every feature. The learned professor *had inoculated a dozen patients with white wax!—American Druggist's Circular.*

Adulteration of Peru Balsam with Castor Oil.—Dr. Wagner (Annalen der Chemie und Pharmacie, civ., 109,) recommends for the detection of this adulteration, a method based upon the characteristic reaction of aldehydes with bisulphites of the alkalies. Pure Peru balsam gives by distillation, acid products, but no aldehyde. Castor oil, on the contrary, yields the aldehyde of œnanthylic acid.

In testing Peru balsam, about one hundred grains is to be distilled, until the portion which has passed over amounts to rather more than one-half. This distillate, consisting of two layers of liquid, is then to be shaken with baryta water, the floating layer of oil removed by means of a pipette, and then shaken with a concentrated solution of bisulphite of soda. If the Peru balsam contained castor oil, this liquid immediately solidifies to a crystalline mass, from which—after recrystallizing from boiling alcohol, until the smell of acrolein is removed—the œnanthylic aldehyde may be separated, by means of potash or dilute sulphuric acid, as a colorless liquid, insoluble in water. The crystalline soda compound has the composition $C_{14}\,H_{13}\,Na\,S_2\,O_6 + 4\,aq.$

More probably it contains a mixture of œnanthylic and caprylic aldehydes, and may be better represented by the following formula:—

$$\left.\begin{matrix} C_{14}\,H_{13} \\ C_{16}\,H_{15} \end{matrix}\right\} Na\,S_2\,O_6 + 4\,aq.$$

since it appears that by the dry distillation of castor oil, caprylic acid is produced as well as œnanthylic acid.—*London Pharm. Jour. and Trans., June* 1, 1858.

Minutes of the Philadelphia College of Pharmacy.

At the Semi-Annual Meeting of the College, held Ninth month 27th, 1858. S. F. Troth, Vice-President, presiding.

The minutes of the Annual Meeting were read and adopted.

The minutes of the Board of Trustees for the past six months were read. They inform that Pierce B. Wilson has been elected a member of the College since our last Meeting.

The following Report was read and accepted.

"The Delegates elected to attend the Seventh Annual Meeting of the American Pharmaceutical Association, held at Washington on the 14th inst., Report that they performed the duty, and were highly gratified during the Sessions of the Association to witness so much earnestness in the advancement of our profession as was manifested by the numerous attendance and the valuable reports and papers which were submitted. Delegates were present from all the Pharmaceutical bodies within the United States, except those of Richmond and San Francisco. Our New York and New England friends were numerous, and usefully active in the proceedings. The Meeting was held in the building of the Smithsonian Institute, where ample accommodation was afforded through the politeness and courtesy of Prof. Joseph Henry, who at one of the Meetings gave the Association some account of the operations of the Institute, and expressed his gratification with what he had witnessed of the operations and objects of our body. He also personally welcomed the members. It would be impossible, within the short limit of this report, to convey an idea of the amount of labor submitted to the Association for its approval, but we will be within reason to say that the published proceedings will probably exceed 400 and possibly 450 pages. Many of the papers referred to strictly scientific subjects, others were of a mixed character, and not a few were valuable additions to practical Pharmacy. Among so much that is valuable it may appear invidious to single out special instances of merit, but we may be allowed to allude to the papers of Dr. Squibb, on the revision of the Pharmacopœia, Frederick Stearns, on the Peppermint plantations of Michigan, and John M. Maisch, on the testing of volatile oils, as particularly meritorious. D. J. Browne, Esq., of the Agricultural Bureau of the Patent Office, was present, and addressed the Association, and invited it to take a part in furthering the objects of that department by the distribution of substances and plants of a medicinal nature that may be imported by the office. A Committee was appointed who, in their report, suggest that the several Secretaries of the Pharmaceutical Institutions of the country be made the recipients of the articles distributed.

"The Washington Association invited the National Association to participate in a visit to Mount Vernon and the tomb of Washington, by way of the Potomac. The invitation was accepted, and long will it be a bright spot in

the memories of the visiting members when they recur to the uninterrupted pleasure and gratification which attended this kind manifestation of courtesy of their Washington brethren.

"The meeting lasted four days, having had eight sessions, and adjourned to meet in Boston on the 2d Tuesday in September, 1859.

"A portion of the delegation being prevented from attending, their places were supplied by other members of the College, so that five delegates were in attendance from this Institution."

Signed, WM. PROCTER, JR.
On behalf of the Delegates.

The standing Committee to prepare Obituary Notices of deceased members, reported the following, which were adopted and directed to be placed on our minutes.

EDMUND PRYOR was one of the original members of the College, and during more than 36 years was among its warmest friends and supporters; our Library especially gives evidence of his zeal in the number of valuable books contributed by him. After having served an apprenticeship to the drug business in the store of John Speakman and Dr. Thomas Say, N. W. corner of Market and Second Streets, he engaged in business in the year 1812, at the corner of Front and Green Streets, and remained faithfully practising Pharmacy at that locality till the early part of the year 1855, when he retired from business. He died of paralysis on the 19th of Tenth month, 1857, aged 63 years, and was buried at Laurel Hill Cemetery.

DIED, June 11th, 1858, JOSEPH REAKIRT, druggist, and for many years a member of this College. He entered the drug business about the year 1820, at the N. W. corner of 3rd and Callowhill Streets, at which location he was in partnership with Frederick Klett. He afterwards removed to the S. E. corner, opposite, where he carried on the business alone, and subsequently in partnership with his nephew, the present John Reakirt. In 1837 he established the firm of Reakirt & Haskell, at the location of the old house of Krumbhaar, and was for some time connected with both establishments. Our late fellow member was thus engaged in the wholesale and jobbing drug business for nearly 38 years, and during that time maintained an excellent reputation. He died much lamented by a large circle of friends.

DIED, on 5th of 3rd month, 1858, SAMUEL P. SHOEMAKER. Our friend learned the apothecary business when a boy, under the tuition of Samuel Cummings, in North 2d Street, below Noble. He entered into business early after reaching his majority, in the same neighborhood, and kept the store No. 509 North 2d Street, during most of the time till his death. He joined the College in 1826, and maintained a high character for integrity and probity in the management of his business for more than thirty years. He died after a short illness, at the age of 56.

Died,—On the 8th of 12th month, 1857, William Marriot. The deceased was a native of Duchess Co., New York, and came to this city in 1816, and was apprenticed in the store of E. Marshall, Chesnut Street. He commenced business at the N. W. corner of 5th and Arch sts., and after his marriage removed to the corner of 13th and Filbert Streets, where he conducted the retail and dispensary business. He became a member of this College in 1823, and continued his connection with it until he gave up the business in 1834. He was much respected by his associates for his intelligence and his mild and amiable manners. During the latter part of his life he was the faithful and indefatigable clerk of the Eastern Penitentiary, and to his industry we are mainly indebted for the valuable statistics furnished in the recent Annual Reports of that Institution.

Thomas Gegan, a native of Ireland, was educated in Dublin to the profession of Pharmacy, came to America some years ago, and was engaged in the practice of Pharmacy, in connection with his brother, Dr. John Gegan, at the S. E. corner of Front and South Street. In 1849 he became connected with this College, and at about the same period located at the old stand of Thomas Oliver, N. E. corner of 10th and Filbert Streets. He died in the latter part of the year 1857.

The annual election for Trustees and Committee on Obituary Notices was held. S. S. Garrigues and T. P. James acting as tellers.

It resulted in the election of the following to the Board of Trustees:

T. P. James,	A. B. Taylor,
Jacob L. Smith,	S. S. Garrigues,
Wm. J. Jenks,	Wilson H. Pile,
Evan T. Ellis,	C. Bullock.

Committee on Obituary Notices.

Edward Parrish, Henry C. Blair,

Wm. Procter, Jr.

Then adjourned. Edward Parrish, *Secretary.*

PHARMACEUTICAL MEETING, OCT., 1858.

The first Pharmaceutical Meeting of the Philadelphia College of Pharmacy, after the summer recess, was held in the Hall of the College, on the 5th inst. Present some fifteen members, others not members, but interested in the progess of Pharmacy, were introduced to the meeting. The Hall, during the interval, has been entirely refitted, an addition of cases for books and specimens, and other arrangements necessary to the comfort of the members, having been made. The College would be pleased to receive donations of books, specimens, or papers on any subjects connected with Pharmacy or its kindred sciences.

After the minutes of the last meeting were read and adopted, the following donations to the Cabinet were received.

Through Prof. Bridges, on behalf of Dr. Ruschenberger, specimens of Peruvian Balsam from San Sonate, San Salvador; Balsam Copaiba do. do.

Three specimens of Sago from Singapore; Gum Benzoin from Siam; Stick Lac, from Siam.

From C. Ellis & Co., specimens of Sem. Tiglii and Bengal Cardamoms.

Through Prof. W. Procter, Jr., a bark sent to Rosengarten & Sons, supposed to contain Quinine by sender, but being in reality a species of Croton.

Specimens of Ergot and Tinnevelly Senna, from B. A. Fahnestock & Co.

A fine specimen of Patna, or Garden Opium, from F. L. John.

Samson Snake Root, A. J. Cowles.

Sassafras Root from Brazil.

From E. Parrish, a specimen of Banberry or English Rhubarb.

S. S. Garrigues exhibited an interesting painting of the leaf and fruit of the Brazil Nut of Brazil (Bertholletia excelsa,) illustrating an interesting paper read before the American Pharmaceutical Association, by Dr. Edward Donnelly.

He also called the attention of the meeting to an interesting paper about to be published in the Proceedings of the American Pharmaceutical Association, by Dr. Battey, of Rome, upon the growth of the Arrow Root.

Edward Parrish exhibited a specimen of Aloin, as prepared by T. & H. Smith, of Edinburgh, giving some account of its preparation and use. E. Parrish also gave a very interesting account of his late visit to Europe, detailing notices of the management of the Drug business in England, Scotland and France, including an interesting account of the manufacture of English Castor Oil, as conducted in one of the largest establishments in England. After some general conversation on the subject of Pharmacy, the meeting adjourned.

S. S. Garrigues.

Editorial Department.

Meeting of the American Pharmaceutical Association.—Those of our readers who feel an interest in the movements of this body will find a detailed account of their transactions at the late meeting at Washington in the present number. The meeting was the largest that has yet convened. The room in the Smithsonian building was most admirably suited to the purposes of the convention, being well lighted, amply large, and quiet, offering a great contrast in this respect to the noisy location of the Philadelphia meeting. All the pharmaceutical organizations were represented excepting Richmond, from whence neither delegate nor member came, from whom might have been learned the fate or state of that once promising Association. Convening so near them, and at a time when pharmaceutists

could easily have spared a few days to the national cause, with two of the ex-vice-presidents among them, the sleep of indifference must have overtaken our friends of the metropolis of the Old Dominion, else, for very example's sake, they would have extended a southern welcome on their borders to the assembled delegates and members of the American Pharmaceutical Association.

The meeting extended to eight sessions, and transacted an unusual amount of business of a scientific character in the form of reports on special subjects. That on the preliminary revision of the Pharmacopœia is a paper of considerable extent emanating from several sub-committees. The voluntary contribution of Dr. Edward R. Squibb, on the revision of the Pharmacopœia, is a most valuable paper, replete with practical information. The report on the progress of Pharmacy is a succinct resumé of the numerous contributions to chemistry, materia medica and pharmacy during the year, together with information on the subjects of organizations, poisons, the drug-trade, and an extensive tabular statement of the importation of drugs from abroad. Prof. Guthrie, chairman of the Committee on the Adulteration of Drugs, gave a picture of the condition of the drug market that shows the need of something besides the Drug Law of 1848 to preserve its purity. It is well known that "home adulteration" is largely carried on, and Prof. Guthrie appears to be cognizant of some of the evil doers, but he complains of the apathy of those who should lend their aid in bringing these sinners against humanity to the light for public reprobation. We believe this evil will have to be approached in a manner different from that heretofore pursued. Let the committee ferret out the instances of adulteration, prove beyond a doubt that the alleged cases are real, then describe the means of detection and the appearance of the altered drugs, and let it be widely known through the journals; and then, having this undoubted evidence of the existence and extent of the evil, let the Association, both in its collective and individual capacity, give its best efforts to obtain from our State legislatures laws making the adulteration of drugs, involving life and health, like that of food, a felony, or at least a misdemeanor. When this is accomplished, the action of committees will not be paralyzed, as at present, by the threatening of the law of libel.

The syllabus of a course of instruction in Pharmacy which has been in preparation during the two years just passed, was presented at this meeting. It is a work of about 70 pages, intended as an aid to students of pharmacy in the prosecution of their studies when they have not the opportunity to listen to lectures. It is mostly of a suggestive character, pointing to that which should be studied, and how to learn it, rather than giving positive information, although there are, in the outline given, very many facts stated.

We have purposely refrained from publishing many of the papers of interest until after the issue of the volume of Proceedings, which is now pass-

ing through the press as rapidly as is consonant with the imperfect condition of some of the MSS., and the engagements of the Executive Committee. We are informed that the volume will probably extend to 450 pages, and we doubt not it will be a valuable contribution to the pharmaceutical literature of the United States.

We should be doing great injustice to the subject, if we passed unnoticed the courtesy and attentions extended by the Pharmaceutical Association of the District of Columbia, through its committee of reception, Messrs. Kidwell, Walsh, Clarke and others. By previous invitation, the Association adjourned on the 16th, at 10 o'clock, to visit Mount Vernon and the tomb of Washington. Numerous as were the members, they were amply accommodated with omnibuses to reach the steamer Thomas Colyer. Several of the members were accompanied by their wives, whose presence added no little to the pleasure of the excursion. The weather proved favorable, and after a short stop at the old city of Alexandria, the steamer soon came within sight of Washington's homestead and the scene of his agricultural labors. As the vessel passed preparatory to rounding to, the bell was tolled as is the universal custom with all steamers in passing. The tomb is reached by the ascent of a ravine path which opens out on the plateau above, just opposite that structure. About an hour and a half was spent here and in visiting the old mansion and its vicinity. The impression conveyed to the mind has rather a melancholy or saddened cast; one cannot doubt that the great moving spring of its prosperity has long since passed away from Mount Vernon; every thing bearing the impress of human art exhibits more or less the finger marks of decay, whilst the venerable old trees, probably planted by its former master, still tower up as evidences of the superior skill of nature's architect. We feel glad to have seen Mount Vernon as it is, before it has been submitted to the renovating processes of the Ladies' National Association. To us it conveys the proper idea,—the earthly remains of departed greatness submitting to their inevitable destiny, feature by feature. We fear that soon the busy hand of innovation will seek to restore what is lost, to change the pallor of disease with added colors, to animate in semblance the long rigid features of dissolution, but it will be in vain. Let them retard decay as much as possible; while it lasts, let the present and future pilgrim behold the mansion that Washington dwelt in, and the trees and paths that he moved among and along. Let these be curbed in their growth and preserved in their outline; but do not by a course of "modern improvements" destroy that which now speaks to the reflective visitor in a way not to be forgotten.

Whilst the members were grouped in front of the tomb of Washington, an artist who accompanied the excursion by invitation of the Committee, took an ambrotype picture of the company, which was subsequently copied on paper for the gratification of the members, as a memento of the occasion.,

The members, on returning to the boat, were conveyed to White Hall

two miles below, to partake of a dinner provided by the Washington Association, after which they returned, stopping at Fort Washington a few minutes, and arrived at the city at about 7 o'clock to resume their duties.

Since writing the above, we have received the following notice from S. S. Garrigues, Chairman of the Executive Committee, which is inserted for the information of members of the Association, and others. We are glad to learn that the Committee have been able to place the price of the work so low, as we doubt not that very many pharmaceutists throughout the country will like to have a copy, if it is only for the valuable information of the Pharmacopœia report and the report on the Progress of Pharmacy.

"The Proceedings of the Seventh Annual Meeting of the American Pharmaceutical Association, held in Washington, will be published about the 12th of November. Besides the minutes of the meeting, it will contain, The Report on the Progress of Pharmacy, Report on a Syllabus for the Pharmaceutical Student, Report on Weights and Measures, Report on Home Adulterations, Report on the Revision of the Pharmacopœia, &c.

Also, scientific papers and essays by Stearns on the Medical Plants of Michigan, Grahame on Displacement, Procter on Nicotina, Bullock on Blue Mass, Dupuy on the Saccharides, Stabler on Podophyllin, Donnelly on the Oil of Brazil Nut, Battey on the Fecula of Maranta Arundinacea and its production in the United States, Maisch on the Adulterations of the Volatile Oils, Colcord on the Subject of the Professional Intercourse between Physicians and Pharmaceutists, James on the culture of the Liquorice Plant in the United States, Stearns on the application of our Native Wines in Pharmacy, Thayer on Fluid Extracts, Squibb on Improved Methods for Pharmaceutical Preparations, Procter on the influence which Manufacturing Pharmacy has had and is having on Pharmacy and the Pharmaceutists of the United States, Merrill on the Solubility of all Medical principles in Alcohol, and Stearns on the Peppermint Plantation of Michigan, making a volume of between 400 and 500 pages. Price in paper 75 cents; in boards, $1.00, (this includes the postage). For sale by S. M. Colcord, Boston; J. Meakim, New York; I. J. Grahame, Baltimore; D. B. Clarke, Washington; W. J. M. Gordon, Cincinnati; E. W. Massot, St. Louis, and S. S. Garrigues, (Chairman of the Committee) 108 north 5th street, Philadelphia.

Mind and Matter; or Physiological Inquiries: In a series of essays, intended to illustrate the mutual relations of the physical organization and the mental faculties. By Sir Benjamin Brodie, Bart. D. C. L., Vice President of the Royal Society, with additional notes by an American Editor. New York: Samuel S., & William Wood, 289 Broadway: 1858, pp. 279, 12 mo.

We have been much interested in the perusal of this book. In some repects, it reminds us of Sir Humphrey Davy's "Consolations in Travel, or the Last Days of a Philosopher," although the discussions of the latter were

more in physical science, than in physiology and mental philosophy. It is evidently the product of much thought, and many of the views which have been arrived at, during a series of years in the inner man of the author, are here given out in a pleasantly readible form. Some of the most abstruse questions of mental philosophy are considered, especially the physiology of the brain in connection with the manifestations of the intellect and sentiments. The author is not a phrenologist, yet his study of human physiology leads him to grant much that the opponents of phrenology deny, in reference to the functions of the brain. The subjects of dreams and mental illusions come in for a share, and many curious observations are brought forward by the author. The subject of memory, in its relation to the brain, is ably discussed. We are glad to find that the author does not for a moment doubt the independent existence of mind, in his views of the relationship of the brain to the mind. He considers that all impressions on the brain do not result in memory, but that an impression to be remembered must be accompanied by attention, which is an act of the mind itself; just as in telegraphing a message to be recorded at a particular station, requires the attention of the operator at that station, otherwise the clicking of the apparatus is without result. The subject of insanity is also considered in its partial and general conditions. The power of fixing the attention at will, one of the marks of strength of intellect, is more or less absent in lunatics, in whom a continuous flow of ideas continues to pass, which they are unable to control by attention; or on the other hand, but one idea constantly recurs. The subject of animal instincts, and the mental constitution of animals is discussed, the author inclining to the belief, "that the minds of the inferior animals, are essentially of the same nature with that of the human race," so far as faculties are concerned, but the more important in a far less degree, whilst in instinctive faculties animals surpass man. The sixth and last chapter is devoted to "the science of human nature," and to discussing the merits of Phrenology as a practical reality, the author deciding against its claims on anatomical grounds. The author has avoided technicalities; the work addresses itself as much to the general reader, as to the professional man, and it will amply repay the time required, and afford much food for reflection.

Concentrated Organic Medicines :—being a practical exposition of the therapeutic properties and clinical employment, of the combined proximate medicinal constituents of indigenous and foreign plants. To which is added a brief history of crude organic remedies, constituents of plants, concentrated medicines, officinal preparations, etc. etc. By Grover Coe, M. D. Published by B. Keith & Co. New York, 1858, pp. 445 octavo.

This book, as its name implies, is written to bring into notice the class of medicinal preparations chiefly used by "Eclectic" practitioners, prepared by Keith & Co. of New York. As the mode of making these preparations is kept a secret, and as they have no claim to be considered pure proximate principles, as their names would signify, but are mere mixtures of certain principles of plants. We doubt the propriety of the medical

profession giving them its countenance, for however valuable certain of them might chance to be, they could not be made officinal without the publication of their recipes. Our country is deluged with medicines of this class, and it is time that a stand should be taken to discourage their introduction into regular pharmacy, whilst they remain secret preparations.

Of Nature and Art in the cure of disease:—by Sir JOHN FORBES, M. D. &c. &c. From the second London Edition. New York: Samuel S. & William Wood, 389 Broadway, 1858, pp. 261, 12mo.

This little volume is ably written. Its object is to arrest and direct the attention of the medical profession, to the inherent restorative powers of the human system in its normal condition, and to the extent to which these powers may be relied upon in the cure of disease. The author believes that the materia medica occupies too prominent a position among the "instruments of the medical art," and that mankind having been for ages over-medicated, it is time now for the physician to return to first principles, and let nature perform her restorative functions, whilst he looks on and lends his aid where it can be done with advantage in cases where she has not a fair chance. It is very evident that Sir John Forbes is no advocate of the materia medica in its present extent of outline, and he no doubt looks upon the whole machinery of druggists, apothecaries, pharmaceutical societies and professors of materia medica, as a great mistake like false doctrines in religion and false theories in science, which have condemned poor mankind from time immemorial to swallow pills and potions and be blistered and cauterized, when nature herself would have extended her aid. The truth probably lies somewhere between Sir John and the materia medica; like all reformers, he has probably struck beyond the point of truth, allowing room for reaction. If ever there was a time when such views are needed, it is now, when so many influences are at work to throw the business of curing on mere medicines. Not only are new medicines constantly sought for and held up to notice by the medical journals, but of late apothecaries and "manufacturing pharmaceutists," and even "manufacturing chemists," have joined in the work, and by a wholesale deluging of the country with pamphlets, and circulars, and medicines nicely put up with directions for use, sometimes directed to physicians and often to the public, the medical profession have been to a degree taken unawares, and have joined in the great cry for physical medication, that every newspaper in the land is echoing from Maine to Texas. We have a firm belief in the positive powers of medicines based on a degree of personal experience and observation; we believe that pharmacy is a necessary and a valuable handmaid to medicine, and should rank higher than it does in the great scheme of medical science and art, yet we have no hesitation in saying that her powers have been and are most shamefully prostituted to the business of over medication for the sake of lucre, by regular members of the profession, not to speak of the thousand and one quackeries,

the success of which is a standing disgrace to the common sense of the American people.

The following have been received:—

The Uremic Convulsions of Pregnancy, Parturition and Child-bed. By Dr. Carl R. Braun, Professor of Midwifery, Vinena. Translated from the German, with notes by J. Matthews Duncan, Lecturer on Midwifery, &c. New York: S. S. & W. Wood, 389 Broadway, New York: 1858, pp. 182.

Transactions of the New Hampshire Medical Society.

The American Homœopathic Review. New York, Oct., 1858.

The Nashville Monthly Record of Medical and Physical Science, which is a fusion of the Southern Journal of Medical and Physical Sciences, and the Memphis Medical Recorder.

The Journal and Transactions of the Maryland College of Pharmacy, for September, 1858.

Belmont Medical Journal, (Bridgeport, Ohio.)

OBITUARY.

Robert Brown.—This distinguished botanist died on Saturday, the 12th of June, at his house in Dean Street, Soho, in the eighty-fifth year of his age. Though less popularly known as a man of science than many of his cotemporaries, those whose studies have enabled them to appreciate the labors of Brown, rank him altogether as the foremost scientific man of this century. He takes his position not so much from his extensive observations on the structure and habits of plants, as from the philosophical insight he possessed and the power he displayed of applying the well ascertained facts of one case to the explanation of doubtful phenomena in a large series. Till his time botany can scarcely be said to have had a scientific foundation. It consisted of a large number of ill-observed and badly-arranged facts. By the use of the microscope and the conviction of the necessity of studying the history of the development of the plant in order to ascertain its true structure and relations, Brown changed the face of botany. He gave life and significance to that which had been dull and purposeless. His influence was felt in every direction; —the microscope became a necessary instrument in the hands of the philosophical botanist, and the history of development was the basis on which all improvement in classification was carried on. This influence extended from the vegetable to the animal kingdom. The researches of Schleiden on the vegetable cell, prompted by the observations of Brown, led to those of Schwann on the animal cell; and we may directly trace the present position of animal physiology to the wonderful influence that the researches of Brown have exerted upon the investigation of the laws of organization. Even in zoology the influence of Brown's researches may be traced in the interest attached to the history of development in all its recent systems of classification. Brown had, in fact, in the beginning of the present century,

grasped the great ideas of growth and development, which are now the beacon lights of all research in biological science, whether in the plant or animal world.

But whilst his influence was thus great, his works are not calculated to attract popular attention. They are contained in the Transactions of our learned societies, in the scientific appendices of quarto volumes of voyages and travels, or in Latin descriptions of the orders, genera, and species of plants. The interest taken in these works by his countrymen was never sufficient to secure for them republication, although a collected edition of his works, in five volumes, is well known in Germany. He was of a diffident and retiring disposition, shunning whatever partook of display, and anxious to avoid public observation. Thus it is that one of our greatest philosophers has passed away without notice, and many will have heard his name for the first time with the announcement of his decease. But for him an undying reputation remains, which must increase as long as the great science of life is studied and understood.—*Athenæum.*

In a subsequent number of the *Athenæum*, Dr. George Wilson, of Edinburgh, the author of the "Life of Cavendish," published by the Cavendish Society, says:—

"The great botanist whose life you have sketched in your last number was so modest and undemonstrative a man that it may be feared he has carried to the grave much knowledge on many points, which all lovers of science would have preferred should not die with him. On one of these points, interesting to a wide circle of physicists, documentary evidence may yet exist,—and I ask the favor of sufficient space in your colums to direct the attention of those in a position to settle the matter, towards the question of such evidence existing.

"Robert Brown took a great interest in the much-disputed problem—'Was Watt or Cavendish the discoverer of the composition of water?'—and strongly favored the claims of the latter, whom he had often met in early life. He supplied me with information regarding Cavendish for the 'Life' of that philosopher, written for the Cavendish Society, and expressed—though with his customary caution and reserve—an unhesitating opinion in favor of Cavendish's originality and integrity. On one of his latest visits to Edinburgh, after the publication of the 'Life of Cavendish,' he recurred, in conversation, to the Water Controversy, and startled me by stating that there existed a document or documents, 'which would put Cavendish's claims as the discoverer of the composition of water beyond dispute.' I do not pretend to give his exact words, but I think I do not overstate their import. He would not enter into any particulars, but shook his head and smiled when I pressed him for further information.

"Two years ago I saw him for the last time in London, and after reminding him of his former conversation, asked him if there was no probability of the document or documents in favor of Cavendish being published. I could not, however, extract more from him than the assurance that there

certainly existed such writings. On this point he spoke (for him) most freely,—but when I suggested publication I could not get him beyond smiles."—*London Pharm. Journal.*

M. Aime Bonpland.—This celebrated French naturalist died a short time since at San Borja, Brazils, at the age of eighty-five. M. Bonpland was born at Rochelle in 1773. He was the son of a physician, and was brought up to his father's profession, but the political events of the early Republic compelled him to enter the navy. He made a long cruise as a naval surgeon, but took the earliest opportunity of returning to Paris to pursue his studies. There, at the house of M. Corvisart, he made the acquaintance of a young German of about his own age, who afterwards became known to the world as the celebrated Alexander de Humboldt. These young men became intimate friends, and, when M. de Humboldt undertook his expedition to the equinoctial regions of the New World, M. Bonpland accompanied him. During this journey M. Bonpland collected and classed upwards of six thousand plants which were then unknown to botanical writers. On his return to France he presented his collection to the Museum of Natural History, and received the thanks of Napoleon I., who granted him a pension. The Empress Josephine was very fond of Bonpland. She made him her factor at Malmaison, and often sowed in her garden there flower seeds which he had brought from the tropics. After the abdication at Fontainebleau, M. Bonpland urged the Emperor to retire to Mexico to observe events. A few weeks after tendering this fruitless advice, he sat by the death bed of Josephine, and heard her last words. Her death and the definitive fall of the Empire leaving him nothing to desire in France, he returned to South America, and became a professor of natural history at Buenos Ayres. Subsequently he travelled across the Pampas, the provinces of Santa Fé, Chaco, and Bolivia, and penetrated to the foot of the Andes. Being there taken for a spy, he was arrested by the Governor of Paraguay, and was detained a prisoner for eight years, till 1829. On his release he directed his steps towards the Brazils, and settled at San Borja, where, in a charming but humble retreat, surrounded by orange groves and European shrubs, he remained to the day of his death, receiving with pleasure all French travellers who visited him. He was the author of (among other works) "Les Plantes Equinoxiales," "La Monographie des Melastonies," "Description des Plantes rares et de la Malmaison," "Vue des Cordilléres et Monuments Indigênes de l' Amèrique;" and, jointly with M. de Humboldt, "Voyage aux Regions Equinoxiales du Nouveau Continent."

The name of Bonpland is associated with the history of the cinchona barks, this botanist having, in conjunction with Humboldt, visited the bark districts about the year 1790, and described several of the species of cinchona.—*Ibid.*

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